The OIL WEEKLY

FOR THE DRILLING, PRODUCING, PIPE LINE INDUSTRY

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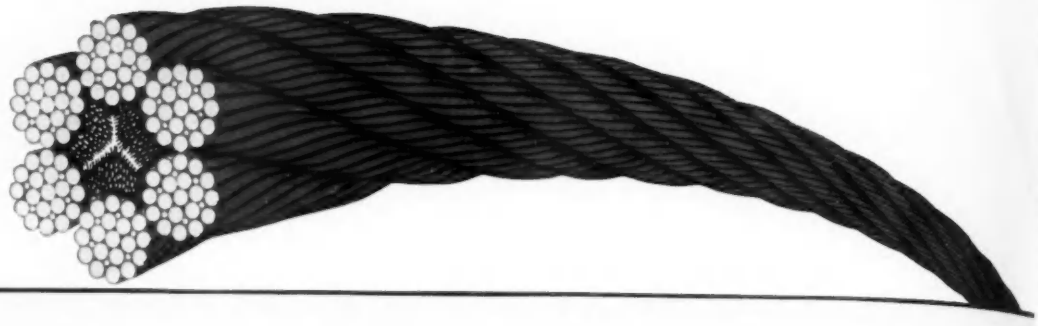

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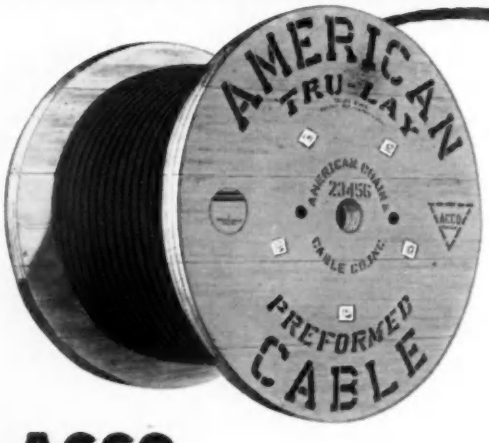

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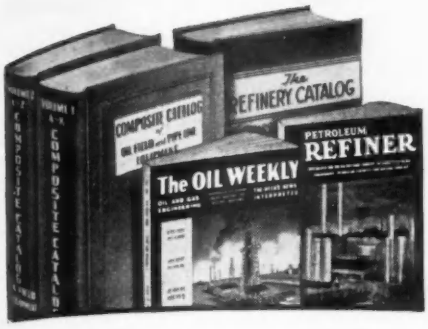

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The **OIL WEEKLY** and The **COMPOSITE CATALOG** for the drilling-producing-pipeline industry

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LOOKING AHEAD
. . . with the Editor

ALTHOUGH the search for oil in Mississippi began as early as 1903, its first commercial oil production was not developed until the fall of 1939 with opening of the Tinsley field. Following several years of activity during which many of its geologic problems were solved, the state has now entered the most interesting and important period in the exploitation of its resources. Important oil reserves were discovered in the area in late 1943, but the year 1944 has been by far the most successful, and the API credits Mississippi with discovery of more oil during that year than any other state in the union. The Institute's committee on petroleum reserves estimates that new oil found in the state in 1944 amounts to more than 186,500,000 barrels—170,000,000 barrels more than its 1944 production.

Four fields have been opened in the state in 1945, and indications are there will be another opened soon in the salt basin area in Jefferson County.

George O. Ives, staff writer of THE OIL WEEKLY, has made a survey of the significance of recent Mississippi discoveries, and an article covering the general outlook and prospects for the state will appear in an early issue. Mississippi undoubtedly has taken a firm place in the nation's oil picture, has uncovered substantial gas reserves, and is expected to contribute vastly more in the future.

Included with the article will be thumbnail histories of all producing fields in the style of the Gulf Coast Issue, and charts showing trends of production and geophysical exploration.

THE OIL WEEKLY

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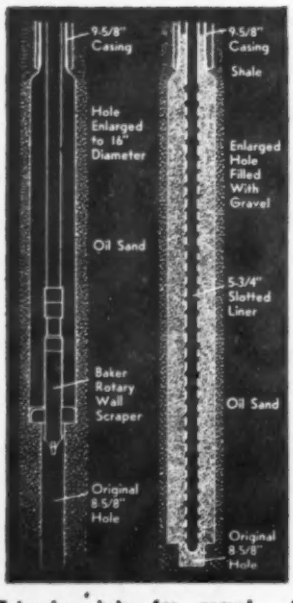
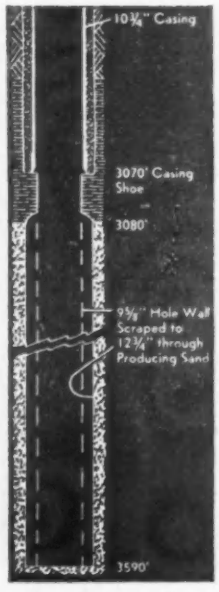
The safety of this tool has been ably demonstrated in thousands of successful runs made in oil fields throughout the world under most adverse operating conditions.

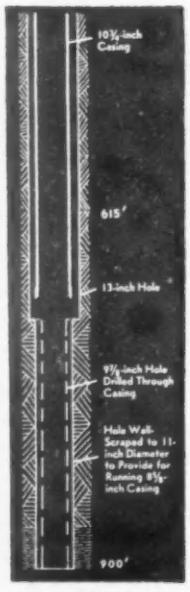
TYPICAL WALL SCRAPER APPLICATIONS



Enlarging hole for gravel packing around liner.



Scraping face of oil sand and enlarging bore for maximum recovery.



Enlarging hole to provide clearance for casing or liners.

Construction Features Which Make Wall Scraper a Sturdy, Dependable Tool

1. Circulation Screen—Design of cone-shaped Screen minimizes abrasive action of fluid and prevents debris from clogging circulation passages.

2. Wall Scraper Body—Machined out of a solid piece of special alloy steel . . . provides great strength.

3. Plunger Head—Provided with oil resistant Seals to prevent fluid by-pass and insure Piston efficiency . . . Blades will positively open.

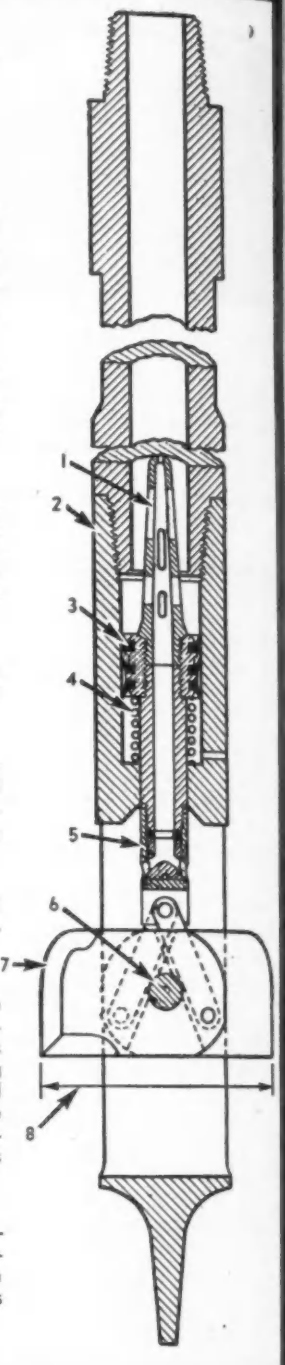
4. Plunger Spring—Strong Plunger Spring insures blades properly closing.

5. Bushing (Circulation Bean)—Fluid is directed on each blade, lubricating and cooling cutting surfaces.

6. Hinge Pin—Machined from solid piece of special alloy steel.

7. Blades—Machined from special alloy steel forgings . . . afford toughness and hardness. Cutting edges are hard-faced and set with Tungsten Carbide inserts. Long bearing surface on blades minimizes "corkscrewing."

8. Blade Expansion—Amazing reaming capacity provided by expansion range of Cutter Blades from 4" to 36".



Competent Baker men will advise, make suggestions, and otherwise assist in securing best possible results.

Send for Baker Broadcast No. 19, giving complete information on the many important field applications for the Baker Wall Scraper.

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The Outlook

The government will not be able to avoid heavy and painful unemployment during the reconversion period. Many manpower problems will be solved within six months as unemployment mounts to nearly 2 million as result of war production cutbacks

* * * *

Oil has a stake in orderly disposition of billions of dollars worth of surplus goods of every type which unless control may impede reconversion program. Industry advisory groups for each major class of surplus materiel will be named by SPB to assist.

* * * *

Increased rations will not mean better gasoline for civilians. Too many high-grade and special type fuels are needed for Pacific fighting. Lead continues scarce.

* * * *

No change is seen in the government's anti-trust policy. Many new cases will be announced after V-J day and the prosecution under Tom C. Clark, new attorney general, will be vigorous.

* * * *

Military requirements for carbon and alloy steels (more than half of total shipments last year) will decline to less than one third of a slightly lower supply by fourth quarter 1945. Copper and copper-base alloy products for military will have slightly greater cutback.

* * * *

Drilling contractors, striving for their own production, thus hope to offset an expected drop in contract work which has engaged every available rig for the past three years.

* * * *

Lumber and other essential materials, short for months to come, will slow down resumption of construction even though certain war restrictions are being relaxed. Control of materials will be reflected by progress of Jap war.

* * * *

Although the shortage of barites which has existed since last December has been relieved, bentonite mud will continue scarce. Enlarged plant facilities have been held up by limited transportation and inability to get needed mill equipment.

* * * *

Cartels are being looked upon with growing favor by delegates to the San Francisco conference, this because of the very nature of certain commodities such as rubber, quinine, etc. Portent of the future?

* * * *

When Texas' comptroller last week determined that legislative appropriations greatly exceeded the prospective income, a corrective natural gas tax bill had already been passed with rates unchanged. But for lateness of the session, an upped rate likely would result because the state constitution forbids appropriating more money for the biennium than the estimated income.

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The Changing Panorama

Qualities Which the Country Will Need

OUTLINING the policy of War Production Board in the months to come, Chairman J. A. Krug has pointed out that although war will be the country's main job, "we must do everything possible to provide opportunities for returning soldiers and discharged workers after the defeat of Japan. Toward that end, it is necessary to get rid of regulations and production limitations as quickly as possible and by doing so automatically lift the ceiling on initiative, imagination, and resourcefulness —the very qualities the country will need most if we are to have a resilient and expanding economy after the defeat of Japan."

"In this way," the chairman continued, "the choice of what and how to produce, buy, and sell—after positive assistance to military and essential war supporting agencies—will be left to the decisions of thousands of manufacturers, wholesalers, retailers, farmers and ultimate consumers, rather than to government agencies and officials."

"If we were to attempt in Washington to see that every manufacturer, wholesaler and retailer got his exact share of relaxed manpower and materials, we would be lost in a myriad of rules and regulations. We would get in the way of reconversion, rather than speed it."

This statement of policy from the chairman of so important an agency as WPB is very encouraging to those who believe that the government should get out of business as much and as quickly as possible. Industry will do its share, but it must be freed of regulation and restriction. No other course makes sense.

New Attorney General And the Oil Industry

THE policy ascribed to Attorney General Tom C. Clark of never filing a suit unless he feels he can win it should bring a degree of satisfaction to oil men. If the Attorney General sticks to this principle, there undoubtedly will be fewer "fishing expeditions," or suits filed primarily for harassment.

It is to be hoped sincerely that the Department of Justice will not be dominated by the arbitrary attitude leaning to strongly to the punitive side, that has been prevalent sometimes in the past. Clark knows a real grievance when he sees one and his past record indicates that he wastes little time in bringing transgressors to justice. Such a straightforward, forthright manner of dealing with law violation is bound to instill respect for the law and promotes scrupulous observance of it.

Members of the oil industry who face prosecution for alleged violations of the anti-trust laws, cases that have been postponed until the end of the war, are fortunate in the fact that the Attorney General, hailing from the Southwest, is bound to know more about the oil business than many of his predecessors.

☆

Every time your heart beats, enough oil goes overseas to run your automobile from Fairbanks, Alaska, down through Canada, the United States, Mexico, and Central America to Costa Rica, next door to Panama. This is made possible by 389 refineries in the United States all of which are working to maximum capacity.

—RALPH K. DAVIES,
Deputy Petroleum Administrator.

Importance of Taxation Study

ALTHOUGH President Truman has indicated that he is opposed to any change in our tax situation until after Japan is defeated, and even if Congress seems inclined to postpone action on the tax problem for the time being, it is very important that this matter of taxation be considered seriously by everyone.

To hope for a reduction in taxes is not futile. By any method of reasoning, it must become apparent that in some respects there has to be a decrease in the levies if we are to avoid large-scale unemployment. Industry cannot expand and provide the share of jobs assigned to it unless some relief is obtained from excessive taxation. This is a matter of common agreement.

Higher taxes than existed before the war must be taken as a matter of course. The war has to be paid for, and taxes are the source from which the money has to come. Much benefit can be gained from a revision of the tax structure, however; and in the opinion of many economists, a more equitable tax system can be arranged.

The research committee of the Committee for Economic Development, 285 Madison Avenue, New York, has prepared a study, "A Post-War Federal Tax Plan for High Employment," which is concerned solely with a revision of the federal tax structure. This study approaches the problem from the standpoint of a high level of production and employment, and presents a solution which will lessen, it is believed, the depressing effect of heavy taxation on these two major objectives of the postwar economy.

☆

Our foreign oil policy has suffered the indefinition of American foreign policy itself. The foreign policy of the United States has never achieved a closely integrated character, although certain broadly marked periods may be distinguished.

—U. S. Foreign Oil Policy,
World Oil Series, Volume II.

"No Rigid Patterns" Is Recipe of Success

"IN STANDARD Oil, we make every effort to keep our thinking from becoming fixed in rigid patterns," Eugene Holman, president of Standard Oil Company (New Jersey) told the graduating class at the University of Oklahoma, University, recently, at Norman, Oklahoma.

"Our entire plan of organization," he continued, "is devised to foster individual initiative and responsibility. We believe in competition. We believe the economic health of the country requires the existence of a large number of small businesses. We ourselves depend on thousands of independent producers, the majority of which are small companies, for more than one half of our domestic supply of crude petroleum. Democracy is well suited to the requirements of a dynamic world because it is adaptable and because it places its reliance on the free individual."

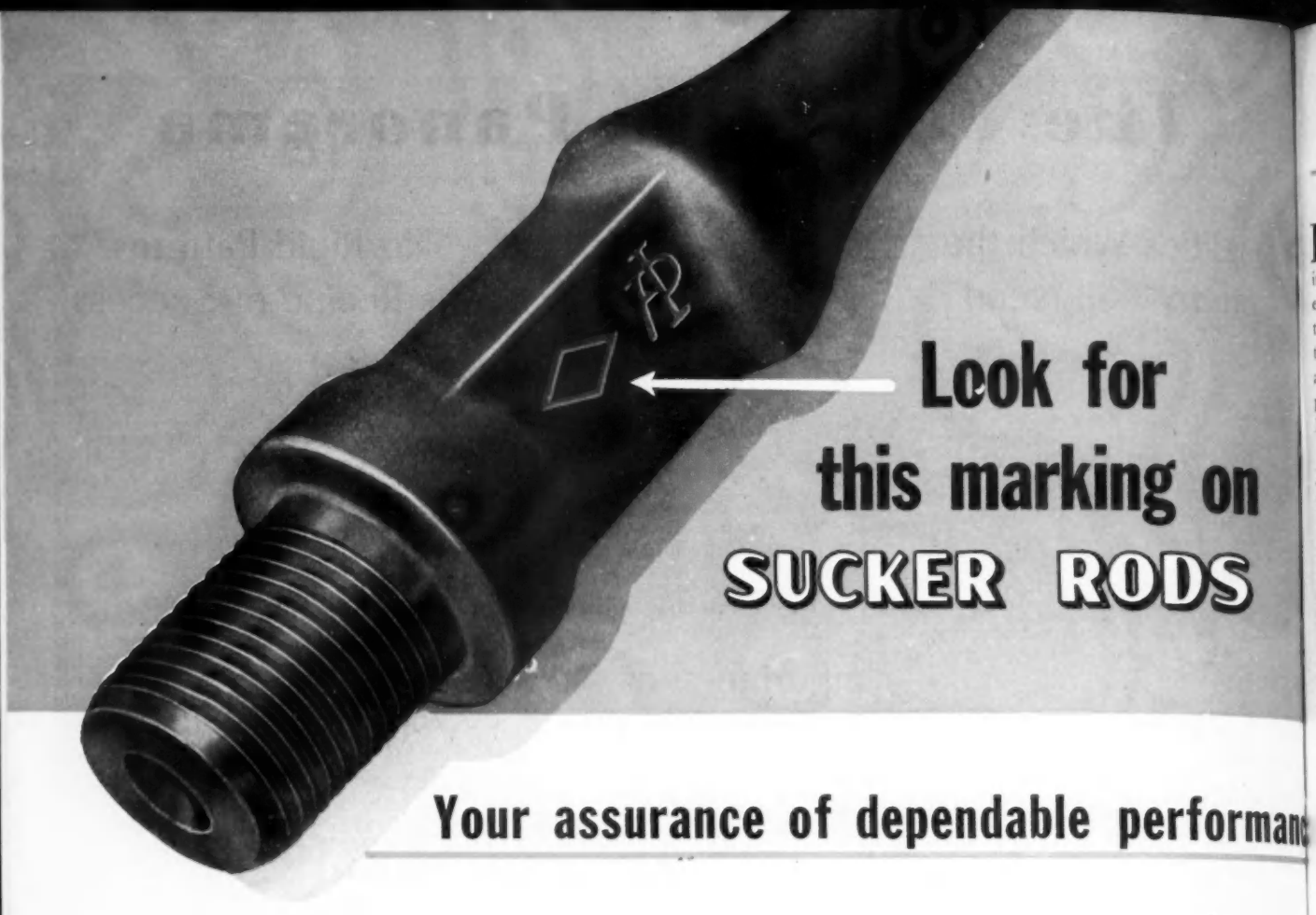
Holman, in his swing through the Mid-Continent area, was optimistic about the future of petroleum, saying that while the industry faces many problems, he believes that restoration of the American system of free enterprise, coupled with common sense and a determination to expand and get along will push the industry ahead.

Patent Protection Helps Maintain Jobs

A MARKED increase in the number of applications for patents now being filed in the Patent Office indicates American inventors have faith in the future of the United States and are endeavoring to create many new products for the postwar era, R. J. Dearborn, chairman of the patents committee of the National Association of Manufacturers, has declared. (See page 43.)

Patent Office statistics show that applications for patents for the first four months of 1945 was about 20 percent above the similar period of last year, and nearly 40 percent higher than that period in 1943. The low in applications for about 30 years came in 1943, when 45,535 were received. Last year the number rose to 54,232, and now is running at the rate of about 62,000 a year.

"The rise in patent applications shows that American inventors are confident that patent protection will be continued," Dearborn said. "The fundamentals of the patent system should be preserved, as patents mean jobs. The incentive to invent must not be curbed if maximum employment is to be provided in the important postwar period. It is a healthy sign that both industry and individuals now are thinking in terms of new products for peacetime production."



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. . . are normally supplied in a wide range of chemical compositions and heat-treatments to meet well requirements of every type.

Although some of these steels are now requisitioned for war use, "Oilwell" is still in position to furnish sucker rods—stocked in special rod warehouses at district points—in the following grades:

T After forging, the entire rod is quenched and tempered — for moderately corrosive and sulphide wells having high stresses.

L After forging, the entire rod is fully normalized and air-cooled — for moderately corrosive and sulphide wells and moderately high stresses.

N After forging, the entire rod is fully normalized and air-cooled — for noncorrosive and mildly corrosive wells and moderate stresses.

O After forging the entire rod is air-cooled — for noncorrosive wells having light stresses.

To the purchaser of sucker rods, "performance" is the thing that counts!

Research facilities of United States Steel Corporation — the world's largest manufacturer of steels—provide "Oilwell" with the exact metallurgical formulas to produce sucker rods that will meet specific conditions encountered in various types of wells.

Engineering experience, gained through 83 years of specialized service to the oil industry, enables "Oilwell" to design and manufacture sucker rods which embody many field-proven principles—minimizing the effects of stress and fatigue and prolonging rod life.

Specify sucker rods that carry the "Oilwell" trade-mark. "Oilwell's" undivided responsibility for material, for design and for precision manufacture is your guarantee of sucker rods that give outstanding performance.

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The Week's News

BIGGEST oil story of the week was the filing of a suit in the Federal District Court at Los Angeles to test the federal government's claim to ownership of oil lands between the California low-tide mark and the three-mile limit. Instituted by the Department of Justice which has been backing and filling on the issue for some eight years, the case is expected eventually to reach the Suprme Court in Washington. Page 28.

Japan's Dispersed Industry—Lopping off the tentacles of Japanese octopus, allied advances in the Pacific have deprived Nippon of the oil, rubber and other advantages of her 1942 conquests, but have not yet caught up with her synthetic and substitute production scattered over the home islands, Korea, Manchuria and China; Japan's loss of the greater part of her sea strength is not an unmixed adversity since it helps solve her oil problem. Page 27.

To Check OPA Price Query—The House Small Business Committee is wetting both feet in oil, with simultaneous investigations of the delay by OPA in completing its study of crude production prices (see Page 27) of alleged tie-up of a major oil company and a tire manufacturer for exploitation of each other's product. Chairman Wright Patman promised a probe of the charge.

Tankers Remain Tight—Lack of tankers will prevent any material increase in petroleum supplies for Latin-American countries dependent upon the United States for oil. Every possible tanker will be switched to Pacific service, where one war is proving mor expensive in oil than did two wars on the opposite sides of the world. Page 26. Elimination of convoys in the Atlantic will speed war movement there as tankers and other ships can resume their best speeds. Return of prewar navigation aids also will help.

Oil Subsidies Continued—Continuation of oil subsidies was approved by the House of Representatives, members of which expressed a belief that the end of the war in Europe should make it unnecessary to spend all of the $290,000,000 earmarked for that purpose. PAW estimates, however, call for continued high level transportation over the more expensive facilities and it is doubtful whether any savings can be made in subsidies. Page 27.

Funds for PAW—The House Appropriations committee praised PAW's work in a report recommending nearly a million dollars less for the coming fiscal year. Story below.

Effect of Jap Attacks—The big repair job ahead of the shipyards as a result of the heavy damages done to naval units by Japanese suicide attacks so far has had no effect on materials prospects of the oil industry, although the current drive for labor may retard the recruiting of new workers. The situation could change if such attacks resulted in the damage of further large numbers of vessels.

Drilling Cost Legislation—With reciprocal trade act out of the way, it is expected the House will consider soon the Doughton resolution fixing the intangible drilling costs option. Page 29.

Los Angeles Production Tax—A resolution calling for the drafting of a Los Angeles ordinance to increase the tax on oil production in the city from ½ to 1½ cents per barrel has been adopted by the city council.

Texas Gas Policy—Recommendations for a gas policy for Texas, submitted last week by "the Governor's Committee," follows closely the PIWC report announced in Washington two weeks before. Page 30.

Texas-West Coast Pipe Line—The proposal for a 20-inch pipe line to carry West Texas crude to California, a war measure rejected last year, is being revived by its proponents. Page 29.

Pipe Line Act Extended—Extension of the Cole pipe line act for one year from June 30 has been approved by House and Senate and now awaits President Truman's signature. Wartime pipe lines were constructed under this measure.

"Escape Clause" in Treaties—The State Department plans to incorporate in all postwar reciprocal trade agreements an escape clause such as was included in the prewar agreement with Mexico, permitting either party to adopt quotas for the importation of any commodity which was threatening domestic industry, it was disclosed during hearings before the Senate Finance Committee on legislation extending the life of the reciprocal trade agreements act and authorizing the President to make reductions not exceeding 50 percent in import duties and taxes in effect last January 1.

Union Is Dissolved—NLRB has ordered dissolved the Standard Employes Association, independent union of workers in the Richmond (California) refinery of Standard Oil Company of California. The order probably will be extended to the union on a statewide basis. It will be contested by the company, officials said.

Sees Production Drop—Crude oil production in the United States is expected to fall back to approximately 3.8 million barrels a day after the war, according to Eugene Holman, president of Standard Oil Company of New Jersey, who predicted that this million-barrel drop would cause some "dissatisfaction and hardships" to the industry but that it is necessary in many fields which have been over-produced because of heavy war demands.

Billion-Gallon Mark—Production of the billionth gallon of high octane aviation gasoline at Standard Oil Company of New Jersey refinery at Baton Rouge, Louisiana, was reached June 1, M. W. Boyer, vice president and general manager, announced. The Baton Rouge refinery is the second in the nation to reach the billion gallon mark in finished high-octane gasoline, the first being another affiliate of the Standard Oil Company (New Jersey), Humble Oil & Refining Company, Houston, which achieved the distinction in December.

Changes in PAW Work Seen In Appropriations Report

Appropriation of $3,968,200 for support of PAW during the fiscal year which begins July 1 was recommended by the House Appropriations Committee June 1 in a report highly commending the agency for its wartime operations. This is $981,800 less than the $4,950,000 appropriated for the year now ending and $31,800 less than recommended in the budget estimates, the latter representing a cut of 10 percent in the amounts sought for travel and postage.

"The Petroleum Administration has accomplished the seemingly impossible in stretching our oil supplies and finding additional new sources of supply to meet the staggering requirements of war, at the same time meeting civilian needs," the committee said.

"They have had much to do as well with the development of oil transportation facilities necessary to augment existing lines. Two new pipe lines from western oil fields to the Eastern Seaboard have been constructed and the committee is informed that the Big Inch has already brought in revenues approximating its cost of construction. These two lines, if properly utilized, will be of service to the country for many years after the war and their financial success is a source of gratification.

"The great distances involved in the

war in the Pacific require such large amounts of gasoline and other petroleum products that PAW's work cannot be expected to reduce until the end of the Japanese war."

"The basic factor influencing our post V-E day activities is that military requirements for petroleum products are more than 200,000 barrels per day larger than present production for the European and Far Eastern wars," W. H. Newman, executive officer explained to the committee a week prior to the capitulation of Germany. "In other words, PAW is in the peculiar position of having to supply more rather than less, products after V-E day.

"A general easing of materials probably will permit relaxation of controls over the use of materials in the petroleum industry. For example, if PAW can remove controls over the installation of marketing equipment, a significant volume of work handling requests for exceptions will be eliminated. Similarly, relaxation of restrictions on drilling of new wells will reduce the work load.

"WPB paper work probably will be significantly reduced. We are advised that the CMP forms will be eliminated and the priority system simplified so that staff will no longer be necessary to handle special rating forms. We will, however, need priority assistance for certain types of materials and equipment which remain scarce, such as tubular goods and certain types of refinery equipment.

Sees Foreign Work

"Substantial expansion of aviation-gasoline refining equipment will not be necessary to meet the most recent estimates of military requirements, provided the facilities now in operation or under construction can be used to the maximum. This will permit a reduction in the staff needed to assist in the construction of such projects.

"Simplification of foreign materials procedures should be possible after V-E day. PAW work for the European subcommittee of the enemy oil committee will no longer be necessary. These reductions, however, will be largely offset by the staffing of technical missions to study German and other European production. These technical missions, which are sent out under the joint chiefs of staff, will temporarily make a sizeable increase in PAW pay roll and travel expenses."

FPC to Pass on Permit For Expanded Butane Plant

The Federal Power Commission is expected to pass on applications of Hope Natural Gas Company for authority to construct additional facilities in West Virginia including $300,000 worth of new equipment to increase the capacity of the Hastings gasoline plant to expand the output of liquefied products, particularly butane and propane.

The project is being taken with the support of PAW, which has informed the commission it is "extremely anxious" to increase the production of these fuels for war industrial and other essential uses.

The FPC will hold a hearing June 11, at which it also will receive testimony in support of the company's applications for a 1000-horsepower gas compressor to be installed at the Cornwell compressor station at a cost of $87,958, and a natural gas dehydration plant with a daily capacity of 40 million cubic feet at the Stonewall Jackson compressor station at a cost of $35,000.

Tankers Bottleneck Latin-American Oil

Lack of tankers will stand in the way of increasing oil supplies to Latin-American countries dependent upon the United States, it was disclosed May 31 by Deputy Administrator Davies.

At the same time, Administrator Ickes said that while tankers will be released from the Atlantic service because of the end of war in Europe, more vessels will be required for the Pacific war. Railroad tank cars also will be switched from Eastern to Western service, he said.

That the domestic oil situation will remain tight was evidenced June 1 in a PAW announcement that present restrictions on civilian fuel oil supplies in the Pacific Northwest will continue until the defeat of Japan.

"The nature of military operations in the Pacific, extending as they do over many thousands of square miles, not only is requiring greater and greater quantities of petroleum products, but the distance of these operations from sources of supply requires tremendous quantities of oil simply to transport our fighting fuels to where they are needed," Davies explained.

"As these operations increase in tempo they are expected to demand greater volumes of fuel oil, diesel oils, aviation gasoline and other oil products than were used in both the Pacific and European campaigns a year ago."

Bureau Figures Disclose New Highs During March

Daily oil production hit a new high in March with a daily average of 4,799,000 barrels, an increase of 40,000 barrels over February, the Bureau of Mines reported. New record levels were attained in Texas and California and operations in Oklahoma and Wyoming were at the highest rates in recent years.

March total crude production was 148,758,000 barrels; natural gasoline, 9,523,000 barrels and benzol, 240,000 barrels.

Against the 4,799,000 daily production, demand for domestic crude was 4,708,900 a day, or 112,700 barrels less than in February, permitting an increase in domestic crude stocks of 2,783,000 barrels during the month and bringing total crude stocks, domestic and foreign, to 229,555,000 barrels on March 31.

Crude runs to stills were 4,719,000 daily, 98,000 barrels under the record set in February. The gasoline yield dropped to 40.8 from 41.5 percent in February, and total deliveries of military and civilian motor fuel were about 68,000,000 barrels. Total stocks of refined oils amounted to 223,290,000 barrels on March 31, a decline of 5,147,000 barrels.

The Bureau of Labor Statistics' price index for oil and products was 64.3 in March, the same as February, compared with 64 in March, 1944. The crude oil capacity represented by the refinery data in the report was 5,023,000 barrels, indicating an operating ratio of 94 percent compared with 91 percent in March, 1944.

Association Indorses PIWC Statement on Gas

A resolution by the American Gas Association advocates private ownership of the oil and gas business, state jurisdiction over conservation and waste of oil and gas, competitive effort in the search for oil and gas with freedom of individual action and enactment of new state legislation or adaptation of existing statutes to promote development by producers of cycling repressuring projects. The resolution endorsed declaration of the Petroleum Industry War Council that any national oil policy should include proposals governing the production of natural gas, contained in the supplement of a preliminary report adopted May 16, by PIWC.

The report held that opposition by some states to export of natural gas to other states is without legal basis, but that jurisdiction of federal agencies over production and sale at the point where its interstate movement commences must remain with the state regulatory agencies. The report held that the end use of gas should not be regulated since competition is the best arbiter in determining the best use of gas. It favored optional treatment of intangible drilling costs and the retention of present depletion allowances for tax purposes and removal of the threat of double taxation on cycling and repressuring projects.

Murrell Tells Nomads About Middle East Oil

In planning future oil markets, competition from Middle East oil should never be forgotten, in the opinion of John H. Murrell, petroleum geologist of the firm of DeGolyer & McNaughton, who spoke recently to the Tulsa chapter of Nomads.

"These Middle East fields barely touched, but covering vast areas and with great producing columns that have been revealed in the drilling so far performed, can and will dominate the world oil markets," he advised.

Foreign Oil Distribution Groups Are Supplemented

Appointment of H. A. Hassan of New York and B. H. Morris of Edgewater, New Jersey, as members of the recently activated North Africa supply and distribution committee, a subcommittee of the foreign operations committee, and A. H. Watts of New York and C. J. Fetzner of Edgewater, New Jersey, as their alternates, also was announced by PAW.

The committee is to participate in the development of the program for supplying North Africa as soon as the military situation permits and as long as wartime product and transportation shortages exist. Other members are N. Goddard, L. J. Blood, J. Parkinson, W. H. Dunning and H. A. Thomas, all of New York; B. P. Newton, Pittsburgh, and J. F. Wooler, Philadelphia.

Eleven additional members of the European petroleum committee, which will perform a similar function in Europe, have been approved by PAW as follows: F. T. Hayden, New York; S. B. Eckert, Philadelphia; J. M. Gardiner, Washington; S. F. Gysin, New York; H. A. Logan, Warren, Pennsylvania; R. W. McDowell, Tulsa; B. H. Morris, Edgewater, New Jersey; L. C. Quakenbush, New York; R. E. Ryerson, New York; Joseph Schneider, New York, and Edwin A. Theurkeuf, New York. Their alternates will be: H. J. Hughes, New York; J. A. Lloyd, Philadelphia; V. W. H. Reid, Houston; R. H. Donaldson, New York; P. B. Watson, New York; R. L. Cleves, New York; W. M. Murray, Chicago; R. G. Sonneborn, New York, and A. J. DuPont, New York.

Present members of the committee are J. P. Berkin, M. J. A. Bertin, L. J. Blood, H. T. Dodge, H. G. Denham, H. A. Hassan and A. M. Wylie, all of New York; W. R. Marshall, Philadelphia; H. I. Casteel and B. P. Newton, Pittsburgh.

Production Directors Named for PAW Districts

Appointment of Allen B. Gibson as director of production for District 3 and Rowland G. Whealton as director of production for District 5 was announced May 31 by PAW.

Gibson, who joined PAW in 1942 as a petroleum engineer in the production division in Washington, was transferred to the Houston office last October and has been serving as assistant director of production for the district. He will succeed E. A. Wahlstrom, who has resigned to return to private industry, after some ten months of service with the agency.

Whealton, who will succeed E. L. Davis, also returning to private industry, has been assistant director of production. He joined PAW in September, 1942, from the M. O. Johnston Oil Field Service Corporation.

Davis was one of the first to sign up with PAW after Pearl Harbor.

Japs Maintain Strong Inner Area War Plants Despite Successes of Allies

Despite allied military successes, a large part of the war industry Japan had at Pearl Harbor is intact, the FEA warned last week. Japanese war industry in December, 1941, was organized to operate efficiently in the so-called inner zone of Japan proper, Korea, Manchuria and some parts of North China.

The allies have scored major successes in almost cutting Japan off from such raw material resources as rubber and oil, although they have, so far liberated less than 7 percent of the nearly 3 million square miles of conquered territory controlled by the enemy.

"Japan, nevertheless, still possesses in her inner zone important raw material resources, substitutes and synthetics," the FEA emphasized. "For example, synthetic oil plants were established in Japan proper, Korea, Formosa, Manchuria and China to produce substitutes for natural petroleum, the most critical of the materials from the south. The maximum estimated capacity of these plants in 1944 was more than 21 million barrels of primary oil.

"With heavy naval and merchant marine losses, this quantity may be sufficient to meet requirements for the approximately 2 million tons of Japanese shipping remaining in the reduced area of operations. The loss of the oil of the Indies thus becomes of less importance in terms of maintaining the Japanese war effort.

"Practically the whole of the Japanese processing capacity, as well as adequate supplies of raw materials, lies in the inner areas. It is true that in terms of individual industrial centers and plants, bomb damage has been devastating.

"To meet this threat from the air, however, Japanese plants have been established in secluded localities in some areas protected by ravines and hills, and widely dispersed industries have been developed in Korea, Manchuria and China. In recent months the dispersal program has been accelerated, and in some localities key plants have been put underground."

Crude Oil Production in the United States

(Estimates compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED June 2	May 26
Alabama	450	450
Arkansas	80,000	79,850
California	939,700	940,200
Colorado	11,000	11,200
Florida	15	15
Illinois	200,800	197,600
Indiana	12,550	12,450
Kansas	258,800	275,100
Kentucky	27,700	26,850
Louisiana	370,050	370,850
North Louisiana	70,250	71,100
South Louisiana	299,800	299,750
Michigan	46,600	45,800
Mississippi	51,850	49,800
Missouri	100	100
Montana	24,276	22,755
Nebraska	900	900
New Mexico	104,800	104,750
New York	13,500	13,900
Ohio	6,000	6,100
Oklahoma	385,900	385,700
Pennsylvania	36,000	36,950
Tennessee	35	35
Texas	2,176,100	2,176,100
Upper Gulf Coast	563,300	563,300
East Texas Field	379,800	379,800
Rest of Eastern Texas	138,250	138,250
Lower Gulf Coast	252,450	252,450
Southwest Texas	81,950	81,950
South Central Texas	21,200	21,200
West Texas	495,250	495,250
North Texas	153,900	153,900
Panhandle	90,000	90,000
West Virginia	8,000	8,000
Wyoming	107,400	106,950
Total United States	4,862,526	4,872,405

To Check Delay in OPA Oil Price Investigation

OPA officials will be asked next week to explain why, after seven months, they have not yet been able to report on the study of crude production costs undertaken last December 4.

The House Small Business Committee, which asked for the study, will hold a hearing June 12 in an effort to ascertain why the matter was not cleaned up in the 90 days which it held was adequate for such a survey.

The committee which, among others, will hear representatives of the Crude Oil Industry Advisory Committee, also will seek to determine if the study is being made on the basis it recommended.

So far, the OPA has merely gathered questionnaires from a select group of producers and has not made any analysis of the figures. The committee will be told that OPA is not making the study along lines suggested, and that it has refused to accept the industry's viewpoint that replacement costs should be given consideration.

Extension of Federal Subsidies Is Authorized

The House has approved extension of government subsidies for one year from June 30. Of $290 million earmarked for the oil industry, $150 million is for meeting the extra costs of transportation on oil and products from PAW Districts 2 and 3 into District 1; $20 million for transportation costs on crude from Districts 3 and 4 into District 2; $75 million for the stripper well program, and $45 million for excess transportation costs on crude from West Texas to California.

Whether these full amounts will be required in view of the changed war situation was a matter of debate. Appropriate Congressional committees will take steps to cut the appropriation should the full amount not be needed.

Tidelands Lease Applications Held Up Pending Decision of California Court

Action on the more than 200 applications now pending for leases on California tidelands will be suspended awaiting outcome of a suit filed last week by the Department of Justice in the Federal District Court, Los Angeles, seeking to enjoin Pacific Western Oil Corporation from offshore operations near Santa Barbara under terms of a lease issued by the State of California.

The court action, taken with approval and the blessing of the Interior Department Attorney General Biddle explained, is limited in its application to the area involved and does not go into the ownership of tidelands or lands under inland waters, nor is it designed to penalize operators who have undertaken development under state leases, making no claim to an accounting for oil already extracted.

The decision of the courts, he said, should provide a basis for any legislation which Congress might deem appropriate to deal with the question of where ownership of under-water lands lays.

Secretary Ickes has long contended that the matter was one for the courts, he having made such a suggestion to Representative Celler of New York as early as 1938.

"I refuse to take the responsibility as an administrative officer of determining that the federal government does not have title," Ickes declared Friday. "If the Congress doesn't want any assertion of title on behalf of the federal government, it ought to pass an act."

It is not expected that any of the producers operating under California leases will file for federal leases, Ickes said. It is generally believed that no such applications will be filed because of a feeling that such action might be against the interests of California's leases and the interest of the state.

Ickes appeared confident that the suit will not tend to restrict drilling, saying "there is always talk about the adverse effect on oil drilling, but I don't think there is much to that; if people want to drill for oil they drill and run the risk both of getting oil and being able to hold on to their holdings."

No Money Judgment Now

Although the Justice Department case asks for no money judgment, Ickes expressed the view that no government official can foreclose further action by a successor. "I have always operated on the theory that I cannot bind my successor," he said.

Biddle pointed out that "ownership of submerged oil deposits off the coast of the United States has been a subject of controversy for years. The problem is particularly acute with respect to deposits off the shore of California where drilling operations were begun on a limited scale more than 40 years ago and have since progressed at an increasing rate. In 1921 California enacted a statute under which leases have been issued by the state and royalties have been paid to it.

"The Los Angeles suit involves a submerged area near Santa Barbara, California, from which oil is being taken by the Pacific Western Oil Corporation under lease from California. These oil wells extend beyond low tide about one third of a mile into the sea and operations are, therefore, within the so-called marginal sea which is the area from the ordinary low water mark to the three-mile limit. This suit would determine not only the legal rights of the United States and the State of California, but also the respective rights of the United States and the other coastal states where there are oil deposits."

Potential Acreage

At the department, it was estimated that the coastal oil fields of California cover an aggregate of 2100 acres with a recoverable content of 35,000 barrels an acre, or about 73,500,000 barrels, but it has been claimed that oil lies in another 5000 acres along the state coastline with an estimated 200,000,000 barrels of recoverable oil. No estimate has been made of the potential production from the Gulf of Mexico. Officials pointed out that title companies have refused to insure titles to submerged lands in some such areas.

In April, 1937, when Senator Gerald B. Nye of North Dakota introduced legislation asserting the title of the government to submerged lands between the low water mark and the three-mile limit and proposing that such lands as contained oil deposits be set aside as a naval reserve. Subsequently, Nye introduced a resolution asserting the same claims and directing the Attorney General to establish the title and possession of the United States.

The resolution was passed by the Senate in August, 1937, and was favorably reported by the House Judiciary Committee, but never reached a vote in the House.

A number of resolutions have been introduced in the current Congress proposing to convey to the states any interest the federal government may have in lands beneath navigable waters, including the coastal areas in controversy, following reports that Ickes was preparing to bring the issue up again by awarding federal leases to California applicants.

"In view of this history of uncertainty, a decision in the present suit should provide a most helpful and essential basis for the consideration of future legislation," Biddle commented.

"The theory of the government's claim in the present case is that the United States acquired all submerged deposits in the marginal sea by the treaty of cession with Mexico in 1848 and that these deposits did not thereafter pass to the state by virtue of its admission to the union.

"The suit does not involve tidelands or lands under inland waters, though the status of these will no doubt be clarified to some extent by the decision. The suit does not involve lands under the high seas, as to which no drilling operations have been found to exist. Moreover, the suit does not make any claim to an accounting for the past extracting of oil."

Texas Comment

In Austin, Texas Senator Allan Shivers said: "Concerning the soundness of the claim to the State of Texas to its coastal waters there can be no shadow of doubt." He cited treaties with Mexico, beginning with the Guadalupe-Hidalgo Treaty, signed February 3, 1848, and including the Gadsden Treaty of December 30, 1853, which define the boundary line between Texas and Mexico. "Under the provisions of the joint resolution for the annexation of Texas, there can be no question that the former Republic of Texas retained all of its public domain which belonged to it at the time it was a republic," Shivers said. Any attack on the title to state-owned oil land not only is a direct invasion "of the state sovereignty but a repudiation of the provisions of a solemnly declared treaty which has been in existence for nearly one hundred years," he declared.

Most Federal Oil Taxes Show Decline in April

Treasury revenue from lubricating oil, gasoline and pipe line transportation taxes declined in April from the preceding month, but the lube levy returned more than twice as much as in the same month last year and the gasoline collections were nearly double, Internal Revenue Bureau reported May 29.

Lubricating oil receipts: $7,468,777, against $9,901,856 in March and $3,496,380 in April, 1944, bringing total for first four months 1945 to $30,036,756 against $17,847,648.

Gasoline tax receipts: $29,474,532 against $34,898,193 in March and $15,953,485 last April, making four-month total $124,732,295 against $77,776,671. Pipe line transportation receipts: $1,036,285 against $1,444,661 in March and $942,652 in April, 1944, bringing four-month receipts to $5,088,540 against $4,843,636.

Sees Better Gasoline

Improvement in the quality of gasoline available for civilians should soon be possible, in the opinion of Dr. Robert E. Wilson, chairman of the board of Standard Oil Company (Indiana). The recently announced increase in gasoline rations is probably about all the quantative relief civilians can expect until after V-J day, Wilson said, but expressed the belief that it should soon be possible for the government to release more lead for making the tetraethyl lead to go with other constituents needed to step up the quality of gasoline.

Green Light!

A Treasury report, agreeing that the Doughton bill expressing the intent of Congress that the option for expensing of intangible drilling costs be a permanent provision of law, would remedy the situation created by the court decision in the F. H. E. case, was sent to Congress last week.

Details of the report were not made available, but the department was said still to be of the opinion that the law should be amended as it has asked every time revenue legislation has come up during the past few years.

With the reciprocal trade agreements act out of the way, the House Ways and Means Committee is expected shortly to turn its attention to the oil legislation.

Since the Treasury's position on intangible drilling costs has been made known heretofore and there is no other opposition to the option, it is believed the committee will deem it unnecessary to hold public hearings on the Doughton bill, but to give it its approval for action by the House without formality.

Lineup for Next Hearing Of O'Mahoney Group Given

Program for presentation of industry's views on domestic petroleum resources before the Senate Oil Investigating Committee was completed last week by John M. Lovejoy, chairman of Industry Committee No. 2. Date for the hearing has not yet been announced.

Lovejoy disclosed that J. Edgar Pew, vice-president, Sun Oil Company, Monroe G. Cheney, president, Anzac Oil Company, and E. L. DeGolyer, consulting engineer, DeGolyer and MacNaughton, have been selected to lead discussions dealing with the location and extent of U. S. oil and gas reserves.

Chairman Lovejoy, president, Seaboard Oil Company, M. C. Haider, production research engineer, Standard Oil Company (New Jersey), and J. C. Hunter, president Mid-Continent Oil and Gas Association, will present conservation and technology procedure.

Tax and price factors affecting exploration production of petroleum will be discussed by Chairman Lovejoy, F. B. Plank, tax commissioner, Cities Service Oil Company, and Walter S. Hallanan, president, Plymouth Oil Company.

Public lands in relation to petroleum will be analyzed by A. C. Mattei, president, Honolulu Oil Corporation, and others.

Ickes Asks Settlement of Refinery Workers' Strike

Prompt settlement of a strike at the Gulf Oil Corporation refinery at Port Arthur, Texas, which shut the plant down May 26, was urged last week by Administrator Ickes in telegrams to company officers and workers.

West Texas-California Pipe Line Proposal Again Heard by Committee

Construction of a 980-mile crude oil pipe line from Monahans, West Texas, to Los Angeles, California, again was proposed by the Pacific War Emergency Pipe Line, Inc., at a hearing Friday in Houston before the pipe line subcommittee of District 3 supply and transportation committee. A similar proposal, calling for a 20-inch pipe line, was refused last year.

Appearing in behalf of the project were Angus G. Wynne of Dallas, president of the Pacific War Emergency Pipe Line, Inc., L. M. Glasco of Dallas, secretary-treasurer of the company, and Jerry Hawkins, vice president.

Wynne and Gilbert Weiss of St. Louis, attorney for the pipe line company, presented testimony citing the need for such a line. Wynne said the proposed construction was based on demand for additional crude oil on the West Coast for the war against Japan.

T. R. Jones and H. Halbert of Dallas, with Oklahoma Construction Company, said the 980-mile line could be constructed in about 4 months from the time the pipe arrived at destinations. They said the weather would not materially delay the work. F. E. Stanley of Tulsa, Mid-West Engineering Company, also told the subcommittee that the work could be done in 4 to 6 months, depending upon the number of crews.

Olin Culberson, chairman of the Texas Railroad Commission, urged the construction strictly as a war emergency. He said more crude oil was available in the area than is now being taken.

The commission's maximum efficient rate for West Texas, which differs from other such estimates, is 712,162 barrels daily, and the new allowable for that area is 500,017 barrels daily, he said.

Colonel D. Harold Byrd of Dallas, president of the Independent Petroleum Association of Texas, favored the construction of the West Texas-California line.

T. E. Swigart, president of Shell Pipe Line Company, is chairman of the subcommittee and presided.

Also present were George A. Wilson of Washington, PAW director of supply and transportation; D. F. Sears of Washington, chief of the pipe line operations section of PAW supply and transportation.

Additional testimony will be submitted in writing by officials of Pacific War Emergency Pipe Line, Inc., after which recommendations, not expected for some weeks, will be made by the subcommittee to the District 3 industry committee on supply and transportation.

Progress Is Reported on New Oil-Shale Plant

Completion of rights-of-way surveys and maps, office building plans and specifications, and water and power system designs, as well as the placement of many equipment orders and the initiation of truck-trail construction, was announced by the United States Bureau of Mines May 31 in a report on progress of the $1,500,000 oil-shale demonstration plant near Rifle, Colorado, made by Boyd Guthrie, project supervising engineer.

Boyd Guthrie

The mining of shale for both the Rifle plant and the research and development laboratory at Laramie, Wyoming, is being started even before the completion of the eight-mile, $35,000 truck trail which is building. So that operations might not be delayed, a three-ton portable compressor was borrowed from the bureau's helium plant at Shiprock, New Mexico, and hauled to the mine site by tractor; other necessary equipment already was on hand to open the mine as soon as the compressor was installed.

The report showed that some delay in some phases of the project was occasioned by the necessity of obtaining rights-of-way to get roads and water and power lines into the United States Naval Oil-Shale Reserves on which the mine and plant are being established. A shortage of personnel also has occasioned some difficulty, it was said.

Davies Cites Need of Full Cooperation in War Effort

The maximum effort of every person in the petroleum industry will be needed if the oil requirements for the Pacific war and essential needs of civilians at home are to be met, it was declared May 31 by Deputy Administrator Davies.

Pointing out that the strike at the Port Arthur plant of the Gulf Refining Company caused the loss of production of about 1,800,000 barrels of production which cannot be made up because the refinery had been working at capacity, Davies called upon the industry to let nothing interfere with the vital task ahead of it.

Davies disclosed that switching tank cars from Atlantic Coast to Pacific Coast service is cutting into rail deliveries into District 1, which dropped from 543,087 barrels daily during the week ended May 19 to 505,783 barrels the following week.

The number of tank cars in West Coast service has increased from 5700 to around 12,400 in the past year, and deliveries have increased from 45,488 to 139,686 barrels daily, with further advances to be made in the next few weeks.

Texas Governor's Committee Follows PIWC Ideas for Regulation of Gas

Texas should oppose the Federal Power Commission's move to take over oil or gas control within the states, and the industry should support the fight, Governor Coke R. Stevenson's committee has recommended. The report, submitted May 30 in Austin after two months work, embodies the main features of the report completed two weeks before by the PIWC, and members agreed that it constituted a sound basis for action.

Railroad Commissioner Olin Culberson, chairman of the committee, favored a short report confined largely to a declaration of state's rights, saying merely that jurisdiction to enact laws and prescribe rules and regulations for conservation of natural gas is vested exclusively in the several states, and that Texas should insist upon that right remaining inviolate up to such time as gas is actually sold or moved into interstate commerce.

Others felt the statement too brief and urged a larger statement which includes policies of other affected states, pointing out the benefits of a united front being presented to Congress.

The committee requested appointment of a supplemental committee to determine how the case should be presented to Congress and coordinate the work of all factions to avoid conflicting evidence.

The 16 points of the recommendation for a sound policy, not yet acted upon by the Governor, are set out, below:

1. The oil and gas business should remain in the hands of private industry, using its own capital to best serve the public interest.

2. Conservation and waste of oil and gas are primarily industry problems; regulations are matters of exclusive state jurisdiction.

Dampen Competition

3. While oil and gas production should be conducted by competitive effort, it is subject to limited regulation by the state to assure a) the prevention of physical waste; b) ratable takings to preserve correlative rights and prevent excessive withdrawals; c) enforcement of proper gas-oil ratios; d) rapid extension of the procedures of gas cycling and repressuring where warranted; and e) limitation of oil and gas production to current market demand, and allowing gas produced with oil and reasonably accessible to find its proper place in the market for gas. Appropriate regulations are the functions of the Texas Railroad Commission and should be left to this agency, which has already made notable advances. Invasion of this field by federal agencies would not only be an unwarranted disregard of state rights but would result in a retardation of technological progress and dampen competitive forces making for growth and progress.

4. While the high levels of required production for both oil and gas and wartime shortage of critical materials have prevented full application of conservation measures, these conditions will be quickly corrected upon peace, and accumulated technology will lead to accelerated conservation steps. Temporary heavy withdrawals under directives should not be regarded as wasteful in the ordinary sense.

5. Because of the unsynchronized growth of the industries, accentuated by federal regulation, part of the gas produced as a by-product of oil wells has, for economic reasons, escaped conservation and become unavoidable waste. Through improved production techniques, including recycling and repressuring, advancement in state conservation practices, expanding markets and prospective demands for conversion to liquid fuel and other products, the economic marketing barriers to gas now unavoidably wasted are being lifted.

6. The search for oil and gas fields or gas fields is best promoted by competitive effort in an assured atmosphere of freedom of individual action and of incentive.

Promote Cycling

7. Producers should hasten the development of cycling and repressuring projects wherever warranted; and the states should adapt their existing statutes, and where necessary enact new legislation, to promote these enterprises.

8. Through cooperation of industry with state regulatory agencies, all vent gas economically available for purchase should be marketed, extending the future reserves of gas.

9. The trend toward the production of liquid fuels and chemicals from oil and gas will be best promoted by private enterprise.

10. Federal agencies should not assert jurisdiction over oil or gas operations within the state that do not relate directly to interstate commerce. Similarly, the state should not attempt to interfere with interstate commerce. Every effort should be made to avoid restraints of interstate commerce by state action.

11. Jurisdiction over the production; processing in all its incidents, gathering, compressing, sale and delivery of natural gas at the point where its interstate movement commences must remain with the state regulatory agencies; and no jurisdiction over such matters should be conferred upon the FPC or other federal agencies.

12. The jurisdiction of federal agencies such as the FPC should be clearly and rigorously limited to the interstate transportation of gas and the sale of gas in interstate commerce for resale. Such agencies should not attempt to reach forward and regulate the local sale or distribution of gas, or reach backward and control either directly or indirectly the production, processing, gathering, compressing, or the price of gas prior to its sale for resale from the main transportation line of an interstate carrier. In fixing the price for which gas is sold interstate commerce for resale, the FPC must be required to recognize: 1) in arms-length transactions, the price paid for the gas delivered to the natural gas company, and 2) in case the natural gas company produces the gas or secures it from an affiliated or subsidiary company, the fair market value of the gas as a commodity, taking into consideration the going market price existing where the gas is produced, and all other factors relating to the value of such gas as a commodity at the point of delivering into the interstate transportation line.

13. The natural gas act should be so amended as definitely to accomplish the objectives set out in paragraphs 11 and 12 hereof.

14. The end use of natural gas should not be regulated. If the state and federal governments enter upon this field of regulation, the ultimate end will be a managed economy. This whole field is best left to the determinations set up by relative prices in a free competitive economy.

Cooperative Legislation

15. While the federal government should not enter the field of regulating production of natural gas or oil, it can assist the industry and the state in the development, production, conservation, and utilization of oil and gas by appropriate cooperative legislation:

A. The Interstate Oil Compact Commission, the advisory or coordinating agency to the state conservation bodies, should be recognized as the most effective medium for the dissemination of knowledge of advancement in the regulations, production, and conservation of oil and gas. Congressional approval of interstate oil and gas compacts constitutes an aid.

B. The option to expense or capitalize intangible drilling costs of gas and oil wells and the retention of the present percentage depletion allowances for tax purposes should be retained in order to encourage exploration and development.

C. The development of cycling, repressuring, and other projects indicating the desirability of voluntary unitizations is being hampered by the threat of double taxation. Such undertakings should be clearly recognized as conservation techniques and should run no risk of being classified as separate business entities, subject to taxation as such. If our federal tax laws were favorably clarified on this score, a tremendous impetus would be given to the entire field of oil and gas conservation.

16. Such regulation as may be necessary by state or federal governments, should go no further than required in the public interest, and should facilitate the operation of the oil and gas business through private enterprise alone. Where regulation is allowed to exceed this role it is harmful to enterprise and the public interest alike.

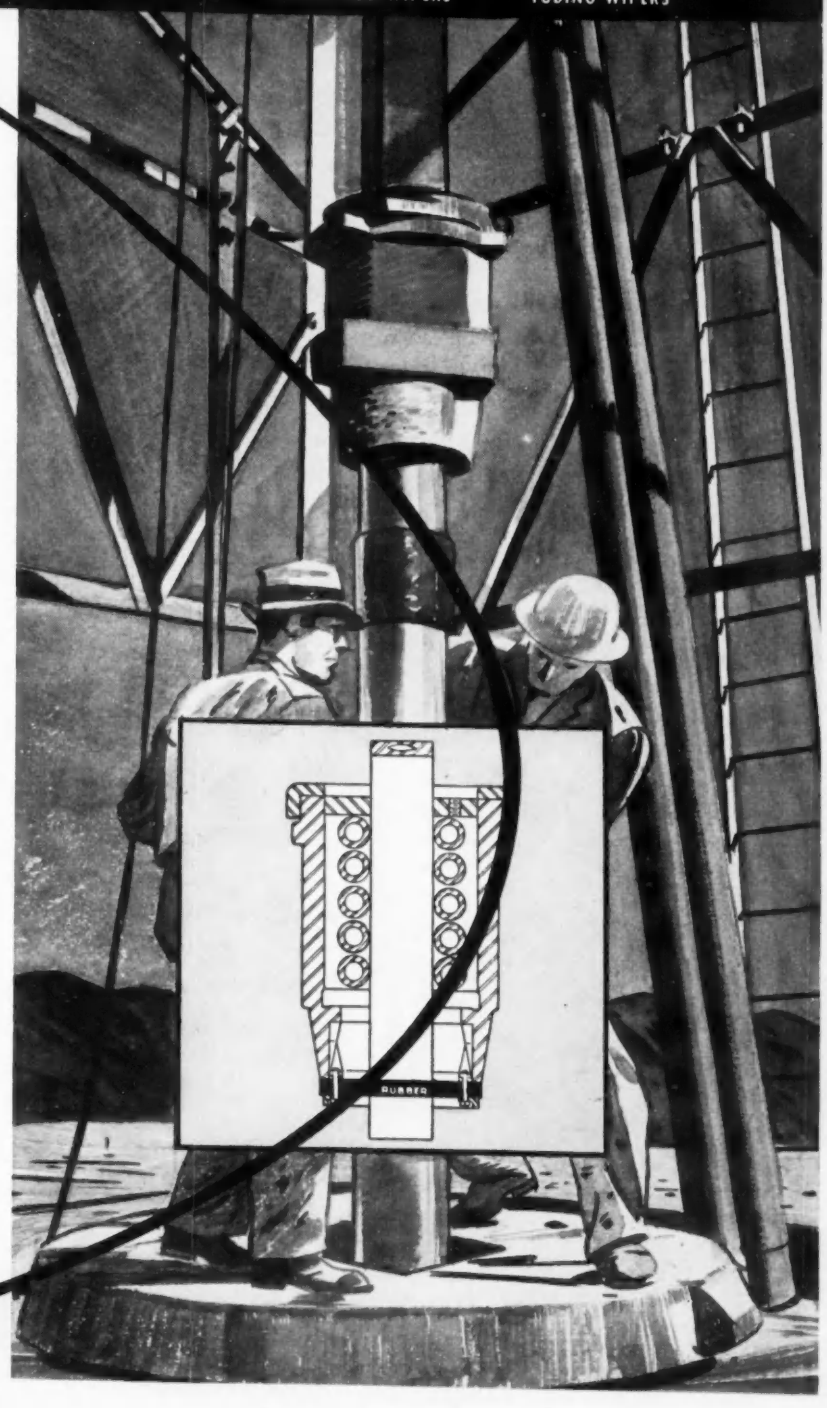
CASING PROTECTORS • STABILIZERS • PIPE WIPERS • WIRE LINE GUIDES • WIRE LINE WIPERS • KELLY WIPERS
KELLY SUB PROTECTORS • MUD GUNS • MUD GUN NOZZLES • SWIVEL BAIL BUMPERS • DEAD LINE STABILIZERS
TRAVELING BLOCK BUMPERS • TUBING PROTECTORS • SUCKER ROD WIPERS • TUBING WIPERS

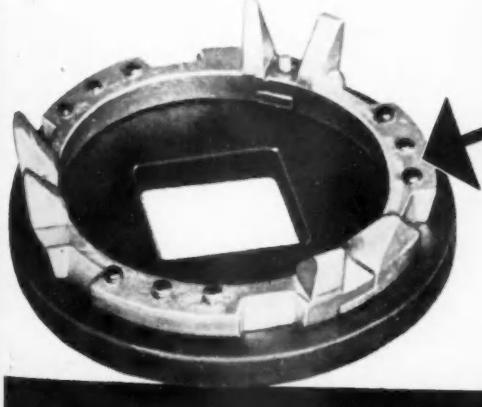
How to Get MORE PRECISION from Weight Indicators

"If a Kelly Wiper is used, the weight indicator works much more accurately," says an Engineer for one of the largest oil companies operating in Louisiana.

Without a Kelly Wiper, mud clogs rollers when mud is packed causing the rollers to lock and the weight indicator to "log," sometimes as much as four points on the weight scale. When, for example, the scale reads the two points wanted for drilling, there may be as much as six points weight on the bit. This may mean the difference between a straight and a crooked hole.

Inexpensive refill, made of Patterson-Ballagh's newly developed rubber PBX is easily installed, when worn.





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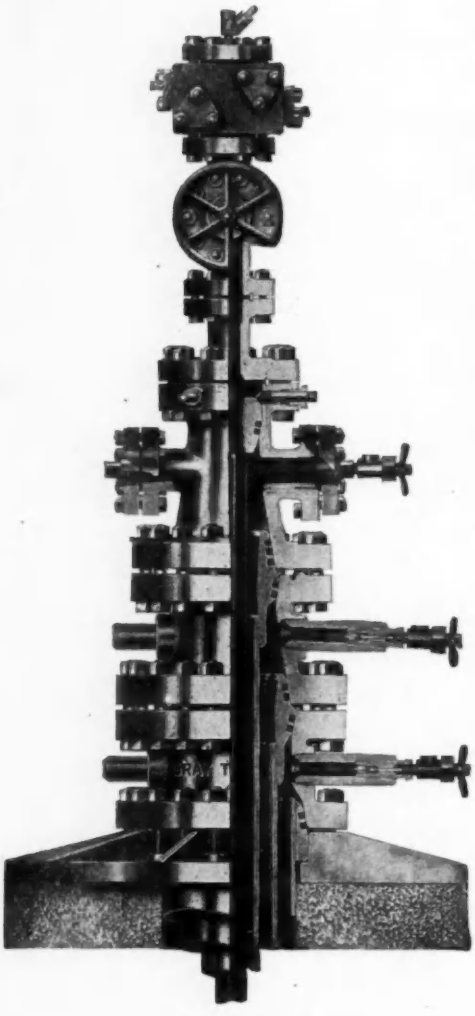

FIGURE 1A

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This is necessary for at least three reasons: (1) to assure that there are no gaps in control; (2) to assure that advantages gained in the performance of one operation will not create disadvantages which more than offset the value of the advantages in the performance of subsequent operations; and (3) to assure that the plan is consistent, in that it provides a balanced, equal degree of strength, convenience, control and safety throughout the entire chain of work which must be performed, from drilling-in to the flowing of the oil from the manifold to the tank.

Provision for control during the assembling and disassembling of equipment is a first premise in the designing of Gray Systems of Well Control. These systems are coordinated methods, providing the highest degree of control and operating efficiency for performing the entire sequence of operations from drilling through producing the well. There is no gap in control when you use Gray Systems of Well Control.

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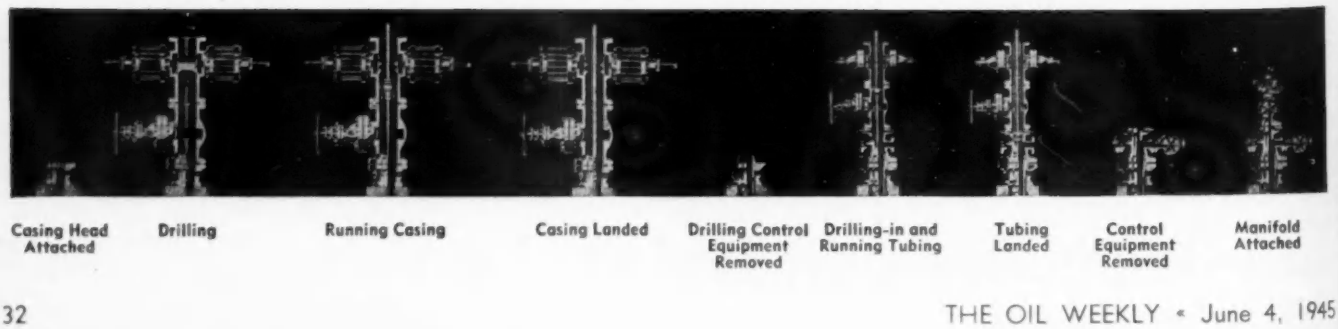


Casing Head Attached | Drilling | Running Casing | Casing Landed | Drilling Control Equipment Removed | Drilling-in and Running Tubing | Tubing Landed | Control Equipment Removed | Manifold Attached

Radioactivity Well Logging

Part 1

Gamma Ray Measurements

By ROBERT E. FEARON
Consultant, Well Surveys, Incorporated

This is the first of a series of two articles on radioactivity well logging. The purpose of the series is to remedy the lack of an understandable, comprehensive discussion of the important technical matters and the theory which pertain to this relatively new well logging method.

The series has been prepared to touch the "high spots" as concisely as possible, yet give sufficient understanding of the underlying theory and application objectives to enable readers to better comprehend the meaning of gamma ray well logging. For a more complete treatment of radioactivity, readers are referred to the extensive references which accompany the articles.

ALTHOUGH a very recent development, radioactivity well logging is now commercially applied with satisfactory results in all parts of the United States and in some foreign oil provinces also. The objectives sought in thousands of commercial jobs can be understood from this series of articles, and from other papers to which the reader is referred (see references 1 to 18 at the end of this article). Much of technical interest, which can be found in previous publications, will be repeated without apology, since it is the purpose of this series of articles to give a basic understanding of each logging process discussed.

Gamma ray well logging measurements are really quite simple. However, the theory which underlies this radioactivity logging method probably is less familiar than is the case with respect to electric well logging.

An explanation of the fundamental nature of matter is necessary as a basis for discussing radioactivity, because radioactive properties are essentially properties of the nucleus of the atom.

Inside the Atom

Atoms were first definitely understood by the English chemist, Dalton,[19, 20] who suggested that these were the ultimate particles of matter and were indivisible. Subsequently, physical research has proved that there are smaller particles of matter, particularly the electron, the electric charge of which has been made the subject of extensive study by the American physicist, Robert Andrews Millikan.[21] The particle nature of the electron has been rather well studied in the course of investigations, using the instrument known as the cloud chamber originally invented by C. T. R. Wilson.[22, 23, 24]

The agitation of electron particles in conductors, due to the presence of heat, has been studied especially by J. B. Johnson[25] and has been the subject of theoretical investigation by Nyquist.[26] In view of these extensive studies, an experimentally-minded individual need no longer think of the electron particles as a theory. The electron is as much a fact as anything else which is susceptible to observation. The process of discovering more and more, smaller and smaller particles of matter has gone on continuously with the advance of physical science. It was postulated by Nils Bohr[29] that a hydrogen atom consists of an electron rotating in any of a certain number of physical orbits around a central, heavy positively electrified particle called a proton. Subsequently, Schrodinger[30] elaborated on Bohr's original theory and perfected it to include practically all kinds of matter.

Under the modern theory, an atom is not a single particle but an arrangement of many particles, consisting of a central nucleus of matter having a positive electrical charge, analogous to the sun in our solar system, and a number of electrons situated around this nucleus at various distances which are moving rapidly but which are prevented from escaping by their attraction towards the nucleus. The nucleus of atoms other than hydrogen is almost certainly another and a smaller system of particles but probably is quite different from anything we know. A very close analogy to some of the larger nuclei, however, can be understood by thinking of these as resembling a liquid drop with material rather evenly distributed in it, and a coherent attractive layer around the outside.

Radioactivity Due to Instability of the Atomic Nucleus

Radioactive properties are essentially propertiees of the nucleus of the atom. Most of the superficially observable characteristics of a substance, such as appearance, hardness, crystal form, etc., are not properties of the nucleus but depend on the number of electrons outside the nuclei of the atoms of which the substance consists. An atom of material which is radioactive does not differ from a similar atom of material which is not radioactive in any of its chemical properties or in the spectrum of light which it can emit, nor do substances made up of many such atoms differ in any of the superficial aspects previously mentioned. For instance, the substance radium D is exactly like lead in all its chemical properties, because such properties depend entirely on electrons outside the nucleus. In being radioactive, however, radium D is not at all like ordinary lead.

Consider another example of a radioactive element, which exactly resembles a known common element, bismuth. This radioactive element is known as radium E. Analogously to the radioactive lead previously mentioned, all the properties of radium E which depend on things outside the nucleus are identical with the corresponding properties of ordinary bismuth, but in some other respects the radium E presents great differences from ordinary bismuth. If there is a large number of atoms of radium E, there will occasionally issue from the nucleus of one of these atoms a very fast little projectile consisting of an electron moving almost with the sped of light. For an electron to acquire as great a speed as is possessed by those issuing from radium E, it would be necessary for it to acquire energy by passing through a difference of electric voltage of nearly a million volts.

As might reasonably be expected, the occurrence of a drastic event like the ejection of an energetic electron changes things within the atom from which the electron issued. In the case of radium E which has ejected an electron, this atom will be found to be very much altered indeed, and will be, in fact, an atom of another, entirely different element, polonium. The polonium itself is also radioactive, and tends to expel from its nucleus a powerful atomic projectile consisting of a nucleus of the light gaseous element helium (helium is the non-inflammable substance used in filling balloons). After the helium nucleus, which hereafter will be called an alpha particle, has issued from the polonium, we again have a different element, in this case made up of atoms of lead,

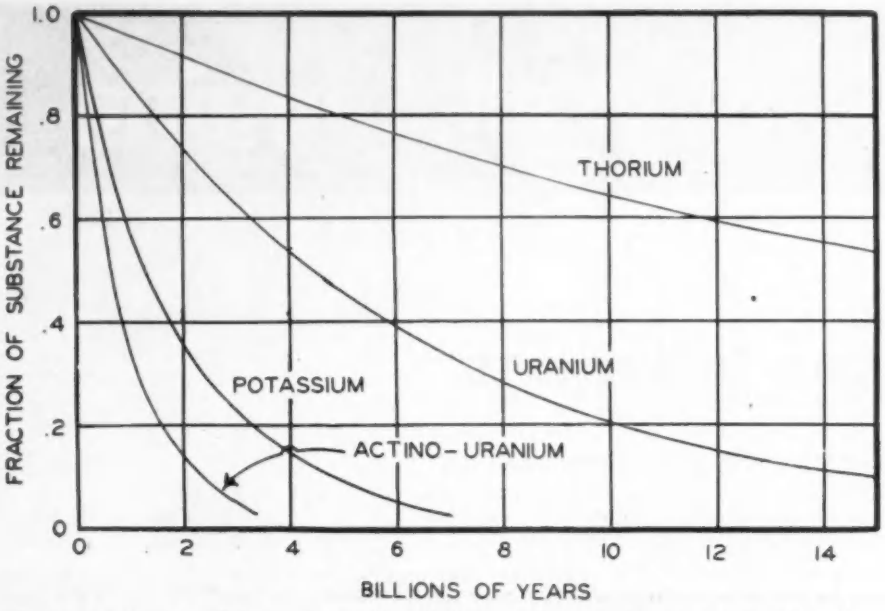


Figure 1. ***Relative Rates of Decay of Long-Lived Radioactive Elements:*** **Radioactivity found in nature, in rocks, or minerals, or in vegetable or animal organisms, is always due directly or indirectly to the presence, somewhere, of one of the above primary substances. As we can judge from the figure, the relative proportion of actino-uranium and of potassium (isotype 40) must have been considerably higher in times past. Data for the plotting of these curves were secured from various sources (see references 23, 27, 28).**

which are not subject to any further change.

Radioactivity, therefore, is characterized by an instability of the nuclei of the atoms of which the radioactive substance consists. It is permissible to think of these nuclei as if they were little tanks containing some particles which want to escape, and which occasionally do escape through small leaks. Atoms of non-radioactive matter probably should be thought of similarly but without the leaks in the little tanks.

Chances of Survival of an Atom

The escaping of particles from nuclei of a radioactive substance is a chance process so far as is known and has no relation to the past history of any particular atom, and does not depend in any way to the question of how long the particular atom has already existed. All that is known is that on the average during a unit of time, a certain percentage of the atoms will explode. For a thousand atoms originally present, the exact number which explode during a second will vary somewhat (because the explosions are a chance process), fluctuating above and below the average number which would be obtained if the measurement was repeated a large number of times.

These fluctuations are of considerably more than abstract importance to those interested in well logging by radioactivity, since they interfere somewhat with the desire to get an accurate measurement quickly when measuring the radioactivity of the earth. A discussion of the nature of these difficulties has been given by W. L. Russell.[28]

Only the Hardy Ones Make It

Because radioactive elements tend to disappear by transmuting themselves into other elements, the amount of them in the earth is constantly decreasing. Curves shown in Figure 1 illustrate the way in which radioactivity due to the elements thorium, uranium (ordinary uranium), and actino-uranium and potassium decreases with time. An inspection of these curves reveals that the rate of decrease for actino-uranium is greater than the rate of decrease of ordinary uranium. It is, therefore, quite fair to say that in the past there must have been a much higher proportion of actino-uranium than is now found in uranium ores. All these decay processes may be plotted in the form of a curve representing the amount of the element remaining, against time, and when so plotted are of a form which the mathematician calls exponential.

Because of the tendency of radioactive elements to disappear, only those which disappear very slowly indeed have been able to remain on the earth in any quantity up to the present time. Others which disappear more rapidly may be found in very small quantity under special circumstances. Elements which disappear rapidly always owe their existance in nature to the fact that they are produced, directly or indirectly by one of the original radioactive elements such as thorium, uranium, etc. Several of the radioactive elements which have persisted in quantity in the earth down to the present time produce quite complicated series of transformations, which are shown in Figure 2.

TABLE 1

Gamma Ray Spectrum of Radium B and C

Data derived from Madame P. Curie, *Radioactivité*, Tome I, page 318, and from Handbook of Chemistry and Physics, 1944 edition.

Emitting Elements	Electron Volts per Quantum	Absorption Coefficient in Aluminum (Per Cm.)
Radium B	.365 x 10^6	.265
Radium C	.577*	.208
Radium C	.745	.194
Radium C	.950	.184
Radium C	1.120	.173
Radium C	1.240	.157
Radium C	1.390*	.151
Radium C	1.730*	.138
Radium C	1.990	.127
Radium C	2.150	.119
Radium C	2.390	.103
Radium C	2.610	.092
Radium C	2.950	.076

* Lines which are particularly strong.

What Gamma Rays Really Are Like

The radiations from the radioactive substances that have been discussed consist of alpha rays (a stream of powerfully projected nuclei of helium, such as were spoken of previously) and beta rays which are electrons having very high velocity, projected from the nuclei of the radioactive elements, and gamma rays which resemble x-rays very much but penetrate matter opaque to ordinary light more easily than do x-rays. Gamma rays produce numerous chemical and physical effects. They turn soda-lime glass purple in time and turn fluoborate glass yellow or brown, and produce nitric oxide and ozone from air. The effects produced by gamma rays are often quite similar to those produced by intense sunlight. Gamma rays are injurious to all living organisms when their intensity is above a limit, which depends on the nature of each creature considered.

The absorption of gamma rays is a chance process, a certain fraction of the rays being absorbed in each successive thickness of the matter penetrated. Thus it happens that the curve which expresses the intensity of the rays escaping through a given thickness of matter, is similar to the curve of radioactive decay with time (see Figure 1) and is, in fact, another example of the exponential curve. Figure 3 illustrates the absorption of some of the most penetrating gamma rays for various thicknesses of aluminum (aluminum has about the same absorbing power as do most shales).

Since so many radioactive elements are found in the earth, and contribute to the gamma rays which are emitted, differences among the gamma rays so produced might be expected, and such is actually the case. These differences or qualities of gamma rays can be said to correspond with a spectrum, more or less as the spectrum of visible light is understood. Although in the case of gamma rays, this spectrum cannot be produced with a prism, as is the case with light, there are other ways of distinguishing the various qualities of radiation present. One is by measuring the absorption of the rays in various kinds of matter. The absorption of any given type of gamma radiation in matter may be measured and a curve presented for that radiation similar to what has already been shown (see Figure 3) for several gamma radiations. A number called the absorption coefficient may be designated to state how rapidly radiations are absorbed.

Table 1 is a list of the more important lines in the gamma ray spectrum of radium B and C. In this table, each gamma radiation is stated (in the column headed "electron volts per quantum") in terms of the electrical voltage which must be applied to any x-ray tube, in order that the most penetrating x-rays so produced would be comparable with the given radiation.

Groups of Gamma Ray Emitters

Because only the elements uranium, thorium, and potassium are radioactive and yet are stable enough to exist in quantities through geologic time, no

other elements need be considered separately in studying the gamma ray emission of the rocks. In fact, the emission due to uranium and all elements produced from it may be considered as a single element, for purposes of geologic study. This may be done because the amount of other radioelements descended from uranium is always in a constant proportion to the amount of uranium. The ratio of quantities of these elements descended from the uranium to the quantity of uranium is determined by the fact that the rate of their creation from uranium is exactly equal to their rate disappearance because of their own radioactive decay. Furthermore, although uranium consists of two kinds of radioactive atoms itself (atoms of ordinary uranium and atoms of actino-uranium), these things need not be considered separately, since these two kinds of uranium already occur in nature mixed up and in a constant ratio to each other. Similarly, the group associated with thorium produces radiation which, for geologic purposes, may be considered as if caused by the thorium itself. The only other independent source of gamma rays in the rocks is potassium,[22] which generates no series of elements, since by emitting electrons and gamma rays it becomes identical with radioactively inert calcium.

Certain comparative things can be said about the radiations emitted by the thorium group, the uranium group, and by potassium. Potassium emits a single kind of gamma radiation which has approximately the same penetrating power as does the mixture of radiations from the uranium group.

The mixture of radiation from the thorium group contains important components which are more penetrating, and accordingly pass through greater masses of rock or iron. The most penetrating radiations from the thorium group are approximately two-thirds absorbed in passing through four inches of aluminum. The less penetrating radiations emitted by elements descended from actino-uranium would be absorbed in this thickness of aluminum.

How Gamma Rays Are Detected

Gamma rays have one outstanding property which has not been mentioned, which is universally, and almost exclusively, the property employed for their detection and measurement. This property is evidenced in their ability to cause many gaseous substances, which are ordinarily perfect insulators, to conduct electricity.

The oldest and most classic method of measurement of gamma radiations consists simply in measuring the conductivity of a gas through which the radiations are known to be passing. It is this method which is generally used in gamma ray well logging at present. There is a further method of detection in which the momentary conductivity of the gas brought about by the absorption of a small quantity of radiation is likely to start off a transitory electrical discharge involving many more gas molecules than those originally affected by the radiation. By observing the number of such discharges per unit time, an indication of the intensity of radiation is obtained. Members of this latter class of detecting devices are generally called Geiger-Muller Counters. Some of the early experiments[3] in gamma ray well logging were made with such instruments. Related processes for observing fluid level inside of tanks and for measuring the thickness of pipes also use Geiger-Muller[22] Counters.

Radioactivity well logging, as at present practiced in the field, employs as its detecting means an ionization cham-

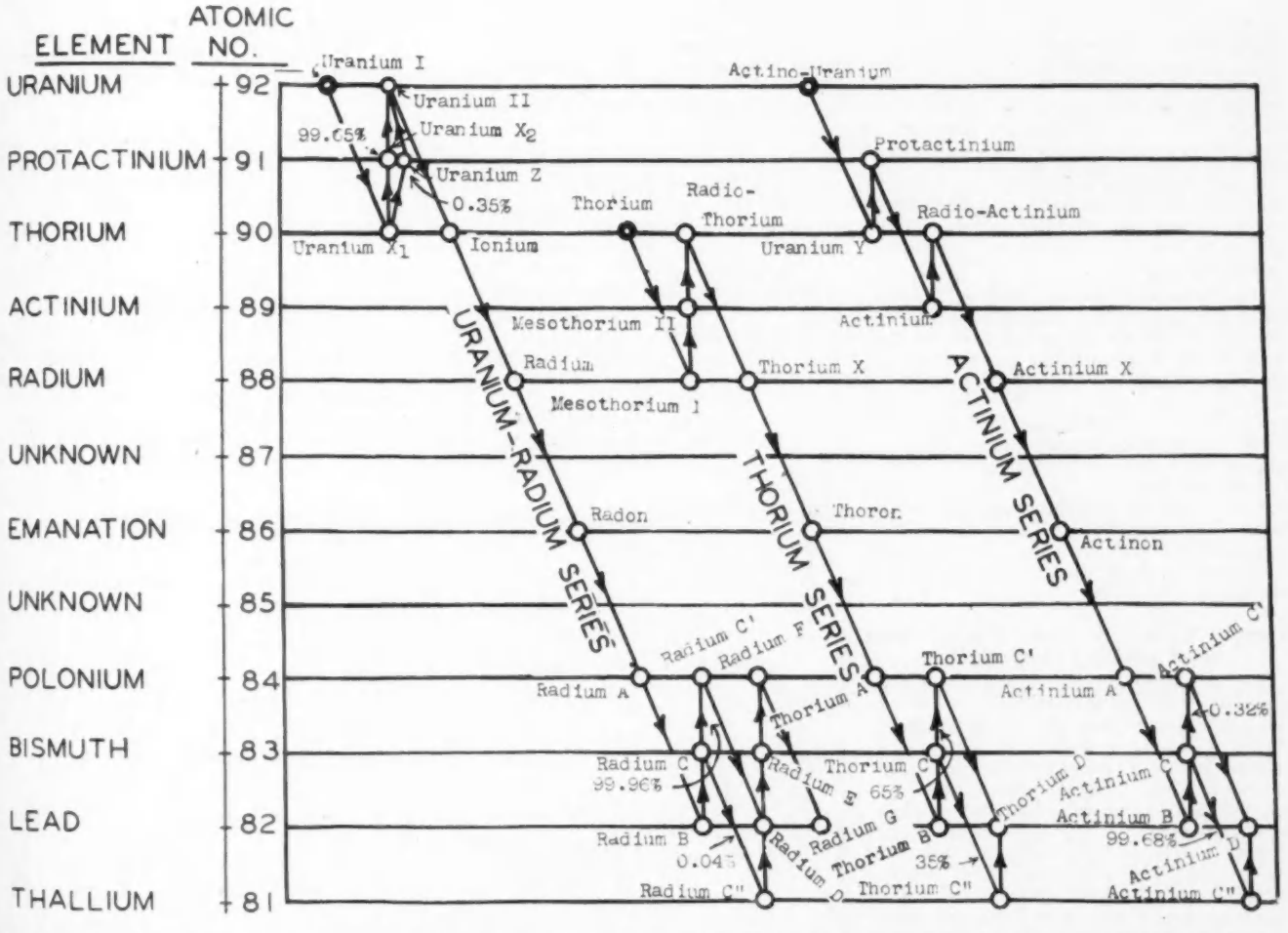


Figure 2. ***Radioactive Series:*** **Radio elements designated by heavy black circles are the heads of series, substances which are found in notable quantities in ores, and in traces in all common rocks. An arrow extending from one circle downward and to the right signifies that an atom of the element at the point of the arrow is produced when the nucleus of an atom of the element at the back of the arrow emits an alpha particle. Where an arrow extends upward between two elements, it signifies that an atom of an element at the point is produced when the nucleus of an atom of an element at the back of the arrow emits a fast electron (also called a beta particle). Where the series branch, the percent values shown for each path express the relative probability that the atom at the head of the two arrows will decay in the ways indicated by the given percent values. All radio elements in a horizontal row exhibit the chemical properties of the element named in the corresponding space in the column headed "Element." Atomic numbers are used in accord with the discoveries of Sir William Mosely.**

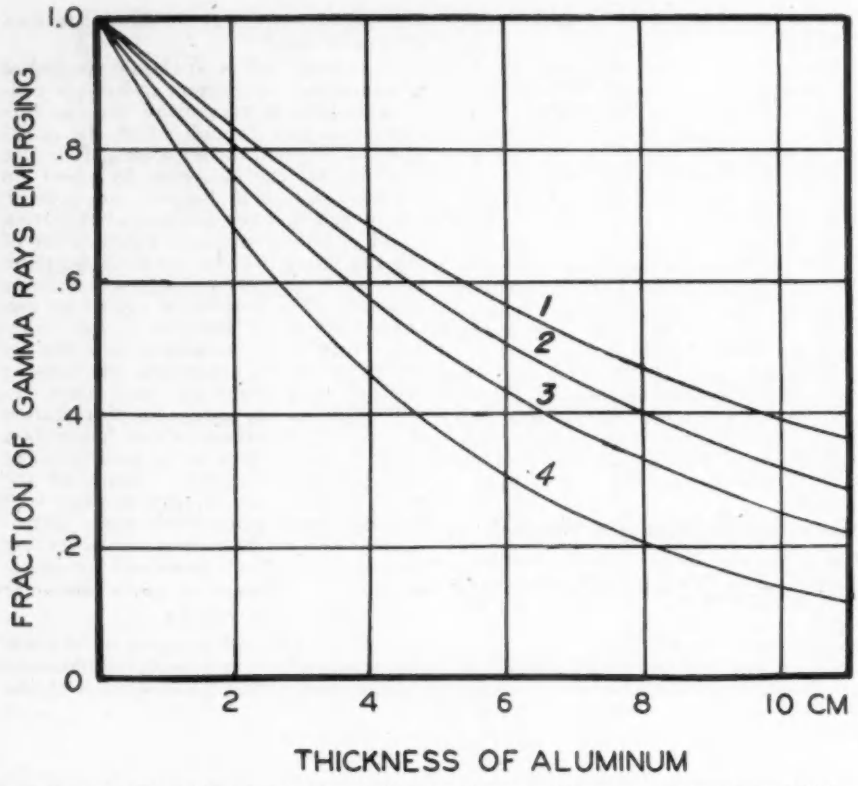


Figure 3. ***Absorption of Penetrating Gamma Rays in Aluminum:*** **Gamma rays from thorium C" (curve 1), and from mesothorium II (curve 2), and from uranium X_2 (curve 3), and from actinium C" (curve 4), are absorbed in aluminum (which has absorbing properties very much like an average shale) as indicated in the above figure. The position of the radioactive elements mentioned, in the radioactive series in which they come, can be determined by referring to figure.**

ber containing inert gas under considerable pressure, which increases the density of the gas and thereby increases its ability to absorb and indicate the gamma radiations.

The current which the ionization chamber delivers to the electrical amplifier contained in the instrument in the well is excedingly small, being approximately one-tenth of a micromicroampere, which is, in other words, about one ten-trillionth of an ampere. The measurement of this extremely small current originally presented important difficulties, which, have been satisfactorily overcome in the present commercial instrument. The current measured is exactly proportional to the intensity of the radiation received and absorbed in the ionization chamber.

Spectral Sensitivity of the Gamma Ray Well Logging Instrument

The relation between the gamma ray spectrum and the penetrating power of the gamma rays has already been seen. Table 1 showed how the nature of gamma rays may be expreessed in terms of the number of volts which must be applied to an x-ray tube before we begin to obtain x-rays corresponding in penetrating power to the particular part of the gamma ray spectrum. This representation of the gamma ray spectrum has been made use of in terms of electron volts per quantum. Figure 5 shows the sensitivity for an ionization chamber (having iron walls three-eighths of an inch thick) to different parts of the gamma ray spectrum. It is seen from the figure that the ionization chamber does not easily admit radiations which correspond to a small number of electron volts per quantum, but does admit the radiations having a larger number of electron volts per quantum. Scherbatskoy, in U. S. Patent No. 2,285,840, has described a method of using two detectors possessing different ranges of spectral sensitivity and combining measurements made by the two different ionization chambers to indicate the relative proportion of certain parts of the gamma ray spectrum which are present in the radiation being studied.

It has not been established that these observations give very much new information about the strata, a circumstance which may be due to the fact that a considerable amount of absorbing matter is already present around the ionization chamber, enough matter to remove all but the most penetrating radiations before they reach it.

Exactly What Measurements Are Made In Producing a Gamma Ray Well Log

A gamma ray well log is a graph of gamma ray intensity observed in a well, and plotted versus depth in a well. Figure 6 shows the general arrangement of the essential parts of field equipment for gamma ray well logging. The instrument, which detects the radiation, is lowered on the end of the cable, which contains an insulated electrical conductor. The insulated electrical conductor transmits the indications of gamma ray intensity to the surface, where they are registered. The movement of recording paper over the rollers in the recording truck is synchronized with the movement of the instrument in the well. Depth is determined by actual measurement of the cable by the number of revolutions, and is checked against a counting wheel.

Control over the accuracy of this process of depth determination is usually secured by making frequent measurements in a test well of known depth, usually a well in which a plug and collar has been placed permanently to form a convenient depth reference. The scale of gamma ray measurements is standardized by placing a gamma ray source of known strength against the instrument before making the survey. The difference between the reading produced by the standard source, and the reading which occurs in its absence, gives an indication of the size of the scale, since the source is made of extremely long-lived radioactive substances which, therefore, emit a substantially constant radiation.

Effect of Speed on the Log

Because of the fluctuations in the radiation, which were mentioned in a previous paragraph, it is necessary to smooth the output of the gamma ray measuring system. If this was not done, the curve would be very erratic. This

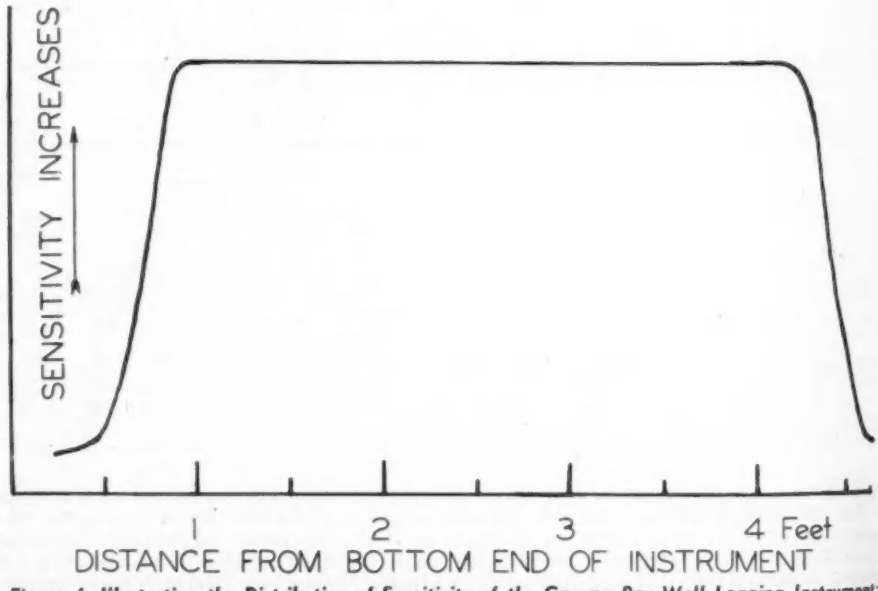
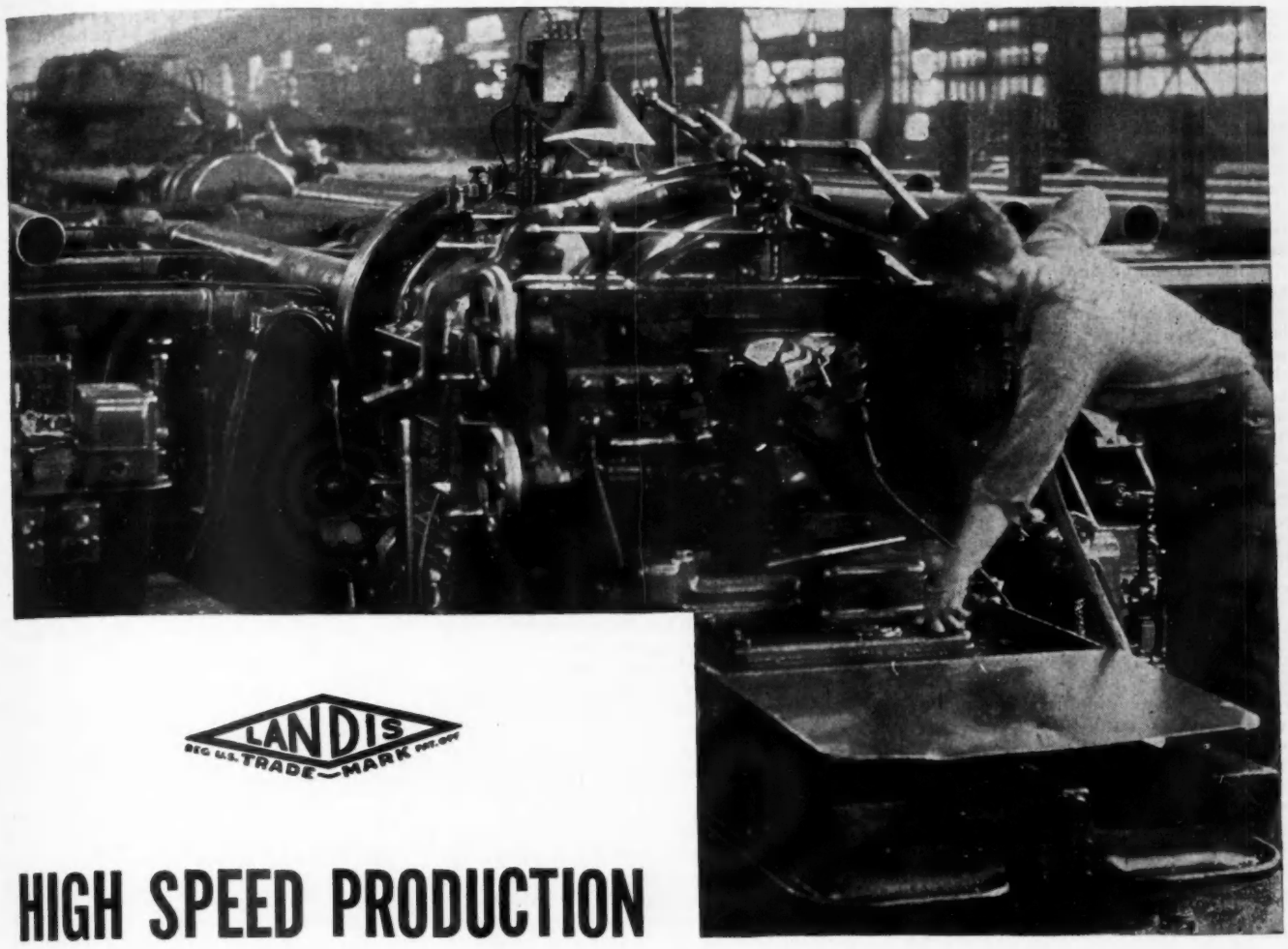


Figure 4. ***Illustrating the Distribution of Sensitivity of the Gamma Ray Well Logging Instrument:*** **The above is an experimental curve showing the response of the 3⅜" well logging instrument of Well Surveys, Inc., when exposed to a transverse beam of gamma radiation at different distances from its bottom end.**



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smoothing process will reduce the peaks on the log, for some of the thinner radioactive strata, if logging speed is too large.

The smoothing process has another adverse effect where the logging speed is very great, which is that it makes the interfaces between successive strata appear to come at a slightly lesser depth than they are actually found. This particular kind of error occurs because the smoothing process introduces a delay in the measurement, and, since the log is made while pulling the instrument upward in the hole, a change will be registered after it has occurred, at a time when the instrument is somewhat higher than the point at which the change actually took place. Logs made at different speeds, in the same well, are illustrated in Figure 7. The logs made at the lowest speeds may always be assumed to be very accurate, but logs taken at the highest speed will be seen to illustrate some of the errors discussed above, as the reader may judge for himself.

Penetration of the Measurement

As can be seen from Figure 3, the amount of rock or other material, which gamma rays readily penetrate, is not very large even for the most penetrating of these radiations. Therefore, it may be considered that gamma ray logging is, in fact, an inspection of the rock exposed in the close neighborhood of the bore hole, but outside the casing (which inserts a uniform of absorption and, therefore, need not be considered). Of course, if there is circulation of fluid in the underground strata, some radio elements may be carried from one place to another. Such transportation does not extend the radius of investigation, except in the direction from which material may be transported, a direction which generally cannot be known. Radio elements probably do not spread very far through the interstitial fluid by diffusion, since diffusion is a slow process and radio elements which are likely to be found in solutions are generally not long enough lived to be carried any great distance in this manner. Moreover, solvation occurs only at the surface, and granules of any size do not constitute effective sources from which material may get into a solution.

For example, radium emanation (radon) can escape from siliceous grains only from the outer surface of such grains, actually from only a skin a small fraction of a micron thick on the outside. Therefore, grains which are many microns in diameter do not lose much radon and do not furnish very much in solution compared with the amount that they produce. On the other hand, grains of very small size furnish a larger fraction of the radon in solution, but its diffusion is interfered with because of the lack of permeability of rocks composed of such fine grained material.

Generally, therefore, radioactivity measurements do not represent a highly penetrating measurement of the rocks being studied and never can be, except in the rarest of cases, anything more than a measurement of the first few inches of material nearby. The fact that a deep inspection of the rock is not make by gamma rays, does not usually affect the value of the measurement,

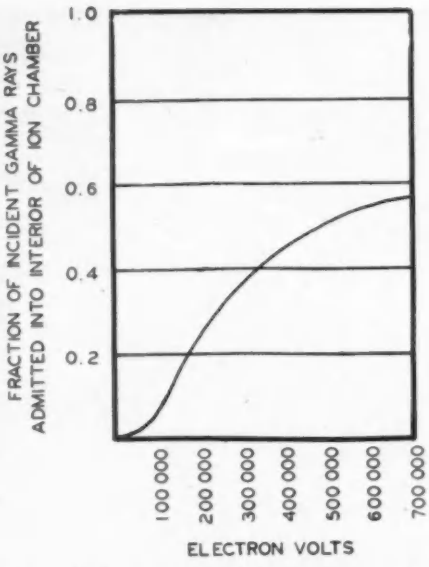

Figure 5. *Spectral Sensitivity of Gamma Ray Well Logging Instrument:* The above curve indicates the manner in which the sensitivity of the gamma ray well logging instrument (having a total wall thickness amounting to 3/8" of iron) varies throughout the spectrum of the incident gamma rays. Based on data obtained from the Physics and Chemistry Handbook, 1944 edition.

since the natural radioactivity is almost wholly a property of the solid mineral matter, which is not seriously altered by any invasion process.

Radioactivity and Petroleum

The founders of the radioactivity well logging art sincerely hoped they would find a direct relationship between radioactivity and petroleum, which would be broadly applicable, and which would enable a person to recognize petroliferous

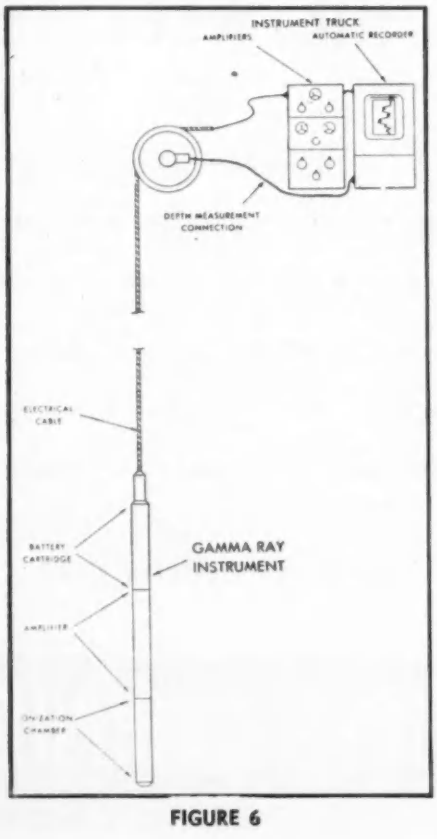

FIGURE 6

horizons with certainty by gamma ray logging. This early hope was based, in part, on a reference to the subject by Ambronn[33].

While radioactivity well logging has proved itself a useful geological tool for studying the rocky components of the strata, and has, therefore, been indirectly responsible for locating petroleum; there is, at this time, a great deal of very positive evidence which indicates the absence of any **direct** relationship between variations of radioactivity and the presence of liquid petroleum. Liquid petroleum is generally low in radioactivity.[34] Logs of wells seen by this author show no general correlation between the presence of petroleum itself in a stratum and the radioactivity of the stratum. Measurements of natural radioactivity appear to hold little promise as a direct oil finding method, although their indirect uses increase all the time.

(The author wishes to acknowledge gratefully the suggestions and constructive criticism of J. C. Barcklow, W. G. Green, and Stanley W. Wilcox. The author extends his appreciation also for the use of the facilities and personnel of Well Surveys, Inc., in preparing this article.)

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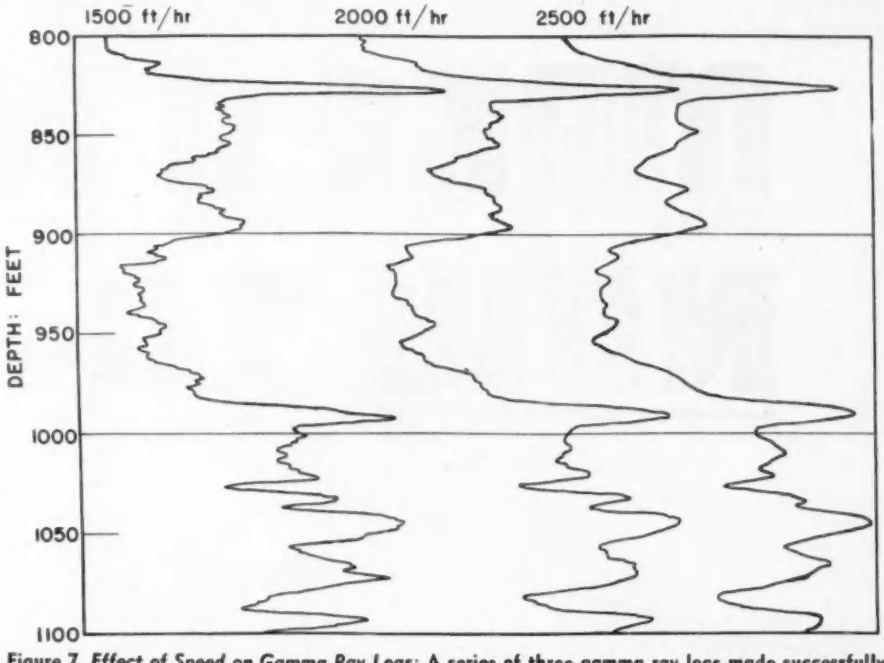

Figure 7. ***Effect of Speed on Gamma Ray Logs:*** **A series of three gamma ray logs made successfully in the same well in Oklahoma City field, showing the effect of higher speeds somewhat above the customary operating range. The smoothing process was set at the best available adjustment for fast logging in making this series of curves. All three curves were made with exactly the same setting of the controls.**

Gas Industry Topics to Be Aired at Compact Meeting

Contrasting opinions among federal agencies, state agencies and members of the gas industry will be aired at the quarterly meeting of the Interstate Oil Compact Commission in the Biltmore Hotel, Oklahoma City, June 14-15, according to Earl Foster, secretary.

Foster declared that a feature of the meeting will be a forum on the last day of open sessions. The topic will be "The Effect of Recent Supreme Court Decisions on the Production and Conservation of Natural Gas." Conducting the forum will be Carl I. Wheat of Washington, D. C., representing the gas industry; Richard B. McEntire of Topeka, chairman of the Kansas Corporation Commission, representing state regulatory bodies; and a third man to be provided by the Federal Power Commission.

The commission's second day sessions will be highlighted by reports of committees and a paper by E. DeGoyler, Dallas geologist, on "Natural Gas Reserves and Supply in the United States." The first day will be devoted to committee meetings and study sessions.

West Virginia has joined the Interstate Oil Compact Commission according to Governor Andrew F. Schoeppel, of Kansas, chairman of the commission.

The compact's membership, representing over 80 percent of the daily oil production of the United States, is now composed of Arkansas, Louisiana, Colorado, Oklahoma, Kansas, Texas, New York, Pennsylvania, Ohio, Kentucky, Michigan, New Mexico, Illinois, Montana and West Virginia.

Research Group Named

Dr. R. C. Cole, Phillips Petroleum Company, Bartlesville, Oklahoma, has been named to the research subcommittee of a medical advisory committee set up by the API to study subjects involving medical problems peculiar to the petroleum industry. The advisory committee is headed by McIver Woody and among its members are Dr. O. S. Summerville with Phillips at Bartlesville and Dr. W. O. Armstrong, Continental Oil Company, Ponca City, Oklahoma.

Humble Announces Changes In Production Department

Humble Oil & Refining Company, Houston, Texas, announces the following changes in supervisory personnel of the production department:

Roy J. Downey, division chief clerk of the Louisiana Division, New Orleans, Louisiana, was transferred to the Houston office as assistant chief clerk of the production department.

J. B. Stamey, assistant division chief clerk, was promoted to division chief clerk of the Louisiana Division, New Orleans.

R. A. Williams, formerly district chief clerk of the Paradis District, Paradis, Louisiana, was transferred to the Louisiana Division office, New Orleans, as assistant division chief clerk.

E. D. Cole, assistant district chief clerk, was promoted to district chief clerk of the Paradis District, Paradis.

T. C. Tanksley, district chief clerk, was transferred from the North Crowley District, Crowley, Louisiana, to the Avery Island District, New Iberia, Louisiana.

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Industry's Position on Proposed Patent Reforms

Patent changes are needed to assure full production and distribution of goods in the postwar world

By R. J. DEARBORN

President of Texaco Development Corporation and Chairman of National Association of Manufacturers' Committee on Patents

PRESIDENT Truman's recent directive to Secretary Wallace for a thorough investigation of alleged monopolistic practices under the patent laws again has brought wide discussion of changes in this country's patent system.

It is of primary importance that patents should operate for the public interest. The growth of the United States to the status of the world's greatest industrial nation has coincided with the life of its patent system which is based on Article 1, Section 8 of the Constitution giving Congress the power "to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."

Changes Needed

We should prepare for a postwar world which will assure the fullest possible production and distribution of goods together with employment for all. Changes are needed in our patent system to reach this objective. There are differences as to what they should be. I shall try to enumerate what I consider are beneficial changes for industry and those which are not.

The fundamentals of the patent system should be preserved. The incentive for an inventor to create must not be curbed. No one has ever conceived a more effective way to promote and encourage technological inventions and improvements than the 17-year exclusive right given an inventor in the shape of a patent.

The United States Supreme Court in its decision last January in the Hartford-Empire case reaffirmed one of the basic principles of our patent system "that a patent is property, protected against appropriation by individual and by government."

In commenting on the decision the National Association of Manufacturers said, "This is a heartening reaffirmation of one of the basic principles of our patent system which, until recently as least, seemed to be questioned by the Department of Justice. Congress has repeatedly decided after careful study that the progress of science and useful arts is best promoted by giving the inventor property right in his invention, and the Supreme Court now has refused again to depart from that principle. If that principle were clearly recognized, much of the controversy over patents would disappear."

Let us examine proposed patent legislation, beginning with what I believe is desirable.

Recording of Patent Agreements

One of the most important proposals provides for the recording of patent contracts and other contracts, particularly as related to cartels and possible anti-trust law violations. This was recommended in the report of the National Patent Planning Commission made in June, 1943, and is embodied in a bill, H.R. 2632, introduced in the House by Representative Boykin of Alabama.

International patent agreements have been subjected to much loose talk and widespread misunderstanding. There may have been some cases of abuse, but the overwhelming evidence is that American industry has obtained information on technical developments in foreign countries which has been vital to our war effort, and that the good has far outweighed the evil.

Extreme care should be taken in our zeal to prevent monopoly and cartels that we do not set up barriers to the free flow of scientific and technical information. Such exchange of information is not only important to world peace but also to our own interest, because our own standard of living rises as we achieve maximum scientific and technological progress, whether from American or foreign research and invention.

In order that industry adheres to government policies on international agreements pertaining to patents and the exchange of technical information, I believe that such agreements should be filed with the government. This also should apply to domestic contracts so as to assure adherence to laws preventing uncontrolled monopoly and restraint of trade.

It is extremely important that industry support the principle of recording patent contracts because this will meet one of the most serious criticisms now made of industry's patent practices. The recording of agreements, to a large extent, would remove the unjustified suspicion that manufacturers are entering into secret agreements contrary to public policy. It also would be one of the best answers to both the cartel and anti-trust law violation accusations.

Agreement in Principle

For this reason the bill introduced by Representative Boykin is favored in principle. However, it is important that information of a competitive nature should be safeguarded. Only abstracts of patent agreements containing limitations should be filed in the Patent Office. The Boykin bill calls for the recording of virtually all patent agreements but the National Association of Manufacturers recommends the recording only of agreements containing limitations such as those pertaining to price, field of use, territory, etc.

Among other recording bills is one, S. 10, introduced in the Senate by Senator O'Mahoney. This would provide for the recording of all agreements relating to foreign trade. It is intended to carry out recommendations made by government departments and is likely to receive strong support. The bill provides for the recording of all international patent agreements but does not deal with domestic agreements. Moreover, it provides for recording in the Department of Justice rather than in the Patent Office.

In any such legislation care should be taken to avoid the necessity of recording papers pertaining to ordinary business transactions. The language of S. 10 in its present form is much too broad and uncertain in this and other respects. A single measure, such as the Boykin bill, should be passed to provide for

recording all patent agreements whether they pertain to domestic or foreign trade or both.

For many years all patent assignments have been recorded in the Patent Office, and any new recording statute also should provide that all patent agreements be recorded in the Patent Office and not in the Department of Justice.

The "20-Year" Bill

Another constructive proposal is that which would provide for the expiration of a patent not more than 20 years after an application has been filed, but keeping the term of a patent at 17 years. This has been recommended by the National Patent Planning Commission and is embodied in another bill, H.R. 2631, introduced in the House by Representative Boykin.

In some cases the period of argument in the Patent Office has been excessively prolonged so that a patent is not issued until many years after the application has been filed. It is clearly not in the public interest to postpone the beginning and the ending of a patent term.

The bill introduced by Representative Boykin thus gives the applicant three years—which may be extended to five years at the discretion of the Commissioner in cases where the delay is not the fault of the applicant—in which to prosecute the case to final issue without reduction of the 17-year life of the patent.

Listing of Patents

Another bill, H.R. 2630, introduced by Representative Boykin, would provide for the listing of patents available for license, which was recommended by the National Patent Planning Commission. This, in principle, is to be commended as it would encourage patent licensing, spread the use of available patents and tend to remove cause for charges that available patents are not as widely used as they might be. However, the NAM Committee on Patents has opposed the suggestion that the Commissioner of Patents should have power to fix the terms and conditions of licenses in case an agreement cannot be reached by the licensor and prospective licensee.

Lanham Trade-Mark Bill

There also is another important bill pending, the enactment of which should be urged by industry. It is the Lanham Trade-Mark Bill, H.R. 1654, which was passed by the House March 6, and is now before the Senate. It aims to modernize American trade-mark laws by recodifying our present statutes which were drafted to meet a relatively obsolete concept of community and intrastate business as distinguished from modern nationwide and international advertising and sale of goods. The measure also will aid American foreign trade as it will adapt our domestic law to the treaty obligations to which the country is committed by international conventions.

Clearer Definition Needed

An important recommendation made by the National Patent Planning Commission is that there should be a uniform standard for determining whether the particular contribution of an inventor merits the award of the patent grant. It is proposed that the statutes be revised so that "patentability shall be determined objectively by the nature of the contribution to the art, and not subjectively by the nature of the process by which an invention may have been accomplished."

The "flash of genius" concept has been supported by recent court decisions which draw a distinction between inventions produced by an inventor acting alone and by an inventor who is a part of an established research organization. Applying different standards to individuals depending upon the environment in which they operate does not seem to be justified or logical. It would seem that an invention's contribution to progress should determine its patentability and not the mental process by which it was created. As Judge Evan Evans, of the Seventh Circuit Court of Appeal, has so aptly stated, "Our interest is in the child, not in how or where it was born, or who were its parents."

Other Pending Desirable Legislation

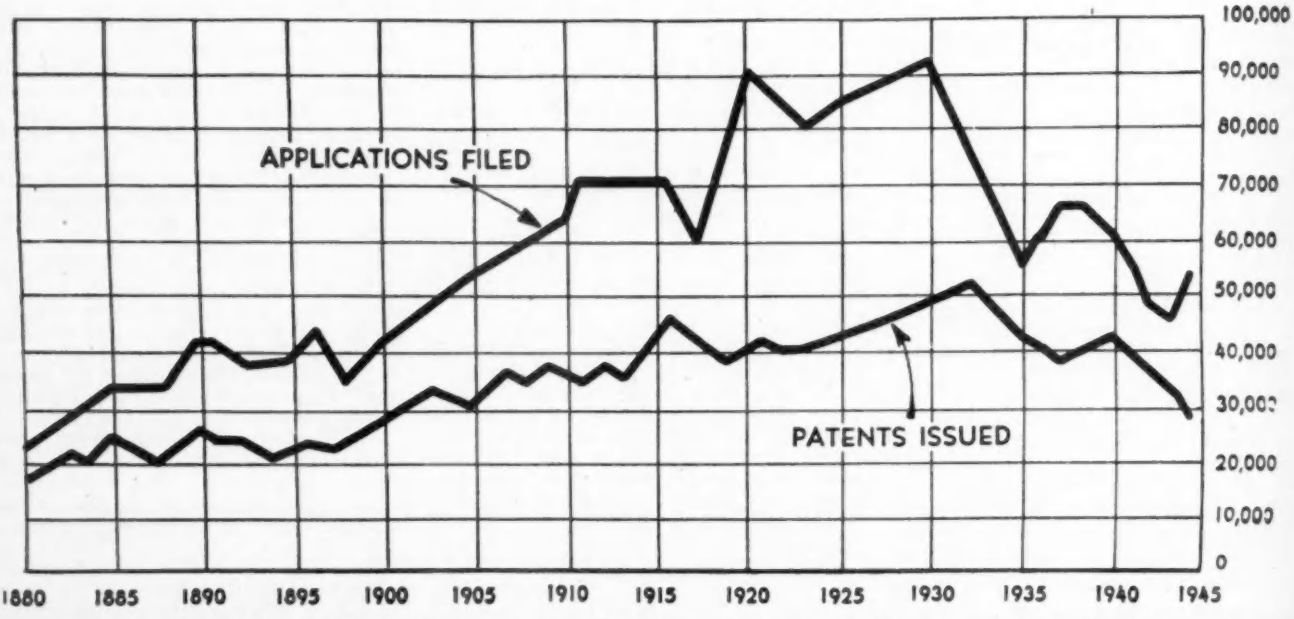
There is pending in the House another desirable bill, H.R. 2111, introduced by Representative Boykin which is known as the "Patent Priority Bill" or the "New Nolan Act." It deals with the extension of the time for filing patents to meet conditions arising out of the war. This bill has the backing of various government departments and legislation of this type is almost certain to be enacted.

Another bill, H.R. 1439, which should be passed is one by Representative Lanham which corrects inconsistencies in the patent statutes with reference to proof of inventions by foreign nationals as brought out by the Schimadzu Case. It has been passed by the House and is pending in the Senate. This carries out a recommendation of the National Patent Planning Commission and the bill has been endorsed by the National Association of Manufacturers.

Other revisions which are needed include a simplification of court procedure and improvement in the facilitation of the movement of applications in the Patent Office.

Nothing is of more importance to American industry and to the public than the maintenance of the U. S. Patent Office at the highest possible standard of efficiency and effectiveness. Unusual progress has been made under the present commissioner, Conway P. Coe. The Patent Office deserves greater recogni-

The Enigma of the Patent Curve



Why are inventive minds more prolific in booms than in depressions? It has been said that war stimulates science and invention. Then why have patent applications dropped sharply during war years? There probably are many other puzzling questions to be answered in studying the above chart, prepared from records of the Patent Office, showing the rise and fall of patent applications and patents issued from 1880 to 1944. It will be noticed that the curve of applications has followed closely the prospect for profit. During the 1920's and '30's applications rose much more than patents issued, and this was due in part to the tightening of Patent Office standards.

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tion. It should be given adequate appropriations to enable it to employ and retain scientists of outstanding ability and in sufficient numbers to make a more complete and expenditious examination of every patent application. The demand for skilled scientists and patent experts is increasing so rapidly that in the postwar period a definite shortage is anticipated. The Patent Office must be prepared to meet this situation without losing its good men.

Compulsory Licensing

Heading the list of proposed changes in the patent system which are undesirable is compulsory licensing.

One of the principal arguments in favor of compulsory licensing is that it would prevent the suppression of inventions. This, I believe, is a fallacy. No one so far has cited a case of a suppressed invention. There doubtless are many patents which are not used either because the patented invention is not useful or because there are cheaper processes in use. Differences of opinion may occur as to whether one of two processes is better than the other. It cannot be questioned, I believe, that American manufacturers use for the production of each product the most efficient methods and in so doing they discard many second best inventions. This is particularly true of the oil industry which is constantly replacing its refinery processes with the most modern and efficient methods available.

Compulsory licensing would strike at the very basis of our patent system. It would reduce the value of a patent and the inventor's reward and incentive. It would influence adversely the character of research. There would be a tendency for inventors to keep their inventions secret which would defeat the chief purpose of the patent laws—to encourage disclosure.

It seems to me that compulsory licensing is a sharing of inventions. This is as foreign to our American way of life as the "share-the-wealth" philosophy. This should be opposed, as it places emphasis on the division rather than the multiplication of the wealth which is essential to higher living standards. It would discourage rather than encourage the creation of new ideas.

Moreover, compulsory licensing would be most damaging to small business and and independent inventors as it would destroy their strongest weapon of competition. It would legitimize piracy of inventions. It would give large corporations an additional weapon to use in acquiring the inventions of independent inventors and small businessmen to whom patent protection is vital.

Many large companies, including The Texas Company and the Texaco Development Corporation, maintain a definite policy of granting licenses under their patents, but experience has shown that industry is generally interested in acquiring a license only when the invention is commercially perfected and when the licensor is willing to guarantee performance or demonstate results to be accomplished. Many small companies have been organized to develop and commercialize inventions and could only justify the necessary expense and risk if the final success belongs to them. Other moderate-sized companies are dependent on research and development risk to produce improvements sufficiently outstanding to enable them to successfully compete with large companies engaged in the same field of activity. Any compulsory licensing law such as proposed would discourage risk capital and research and development expenditures would be highly detrimental to small business and free enterprise.

During the last 40 years more than 30 compulsory licensing bills have been introduced in Congress. Testimony in hearings held on these bills has been overwhelmingly to the effect that it would be fatal to numerous small enterprises. Small businesses cannot prosper without the protection afforded by the exclusive right granted by the patent laws.

Some Undesirable Bills

A bill now pending in the House which provides for compulsory licensing is the Voorhis bill, H.R. 97. It also outlaws limited licenses and cancels patents under certain conditions. Industry should oppose this bill as it is so vague and inaccurate in its language that it would put all patent holders and even patent applicants in jeopardy of their liberty and property.

Another bill, H.R. 2612, introduced by Representative Bailey of West Virginia, which while purporting to "eliminate abuse of the patent system by international cartels" would provide for drastic revision of the patent system along the lines of suggestions frequently made by the Department of Justice. The bill contains many provisions striking at the fundamentals of the patent system and should be opposed by industry.

Fundamentals Should Be Preserved

Investigation of the patent system is a good thing, and it is to be hoped that the inquiry recently ordered by President Truman will produce effective results. If patent rights are being abused resulting in restricted production, higher prices and stifling of competition, such abuses can be corrected under our anti-trust laws.

In this connection reference again is made to the United States Supreme Court decision in the Hartford-Empire case. The fundamentals dealt with and reiterated by the Court have been summarized by Mr. George E. Folk, NAM Patent Advisor, in an analysis, "Patents and the Glass Industry Case." He brings out that the Court reaffirmed the following:

1. Patents are property and as such are entitled to constitutional protection.
2. Patent owners, like other property owners, are, in the exercise of their rights, amendable to the anti-trust laws.
3. The grant of restrictive licenses of the nature generally recognized as lawful (except by spokesmen of the Antitrust Division) is not a violation of antitrust laws, but is properly within the reward to which the patentee is entitled by the grant of his patent;
4. A patentee has the right to use or not use the invention, to license or not license, and to license some and not license others, as he sees fit;
5. Compulsory licensing is alien to our patent system;
6. Cross-licensing and pooling of patents are lawful where restraint of trade does not result therefrom;
7. For a court to accept as law certain assertions of the Department of Justice would amount to judicial legislation, and would be an encroachment upon the functions of Congress.

It is the duty, therefore, of American industry to see that the fundamentals of the American patent system are preserved and oppose any changes which would destroy them.

For some years there was a sharp decline in the number of applications for patents and patents granted. This trend was reversed about a year ago and applications now are showing a marked increase. American inventiveness, then, again is surging forward and seeking new vistas in the important postwar world.

The United States patent system is the backbone and justification of research. It is worthy of protection and preservation in this day of rapid changes. Let us not destroy the incentive to conquer new frontiers or remove the time-honored rewards for such conquest, which are embodied in this country's patent system.

Geological Survey Maps For Several Areas Ready

Oil and gas possibilities in the Sylvania and Bois Blanc formations of Michigan, which have not been fully tested, are indicated on Preliminery Map 28 of the Oil and Gas Investigations series. Copies are 40 cents each from the United States Geological Survey in Washington or the state conservation department, Lansing, Michigan.

Possible undeveloped productive areas in several sands in the Midway-Sunset field, Kern County, California, are shown on Preliminary Map 30, 50 cents each from Washington or the Survey's Los Angeles office.

A new map, Preliminary Map 32, shows 2800 square miles of the Washakie Basin of Southern Wyoming, 40 cents each from Washington or the field offices in Casper, Wyoming, or Denver, Colorado.

A tabular listing of all wells drilled for oil and gas in Wyoming has been prepared in cooperation with 12 oil companies, showing locations, counties, fields, well numbers, operators' names, elevations, surface and bottom-hole geologic formations, names and depths of producing formations, total depths, etc. The tabulation comprises 286 pages of historical data, and is available for inspection in the open fields of the survey offices in Casper; Billings, Montana, and Denver.

Plant Being Dismantled

Lone Star Production Company and Rogers Lacy are dismantling their 50,000,000-foot daily capacity recycling plant in the Willow Springs deep area, Gregg County sector of East Texas, for re-erection in the Carthage field, Panola County, Texas.

The Willow Springs plant was placed in operation in December, 1941, using gas from the 7200-foot Pettit, but the gas reserves proved inadequate for economical operations. Transfer of the plant to the Carthage field was authorized last October when Lone Star Gas Company contracted to purchase the gas output of Rogers Lacy's 30,000 acres of proved and semi-proved leases.

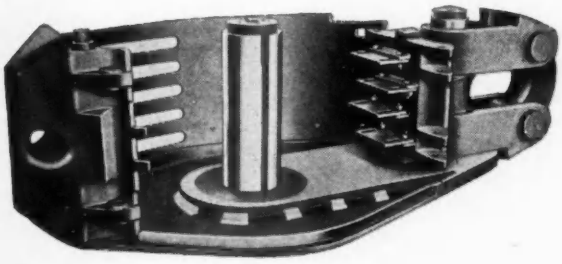
BLOCKS *reveal...*

IDEAL *88-inch Traveling Block*

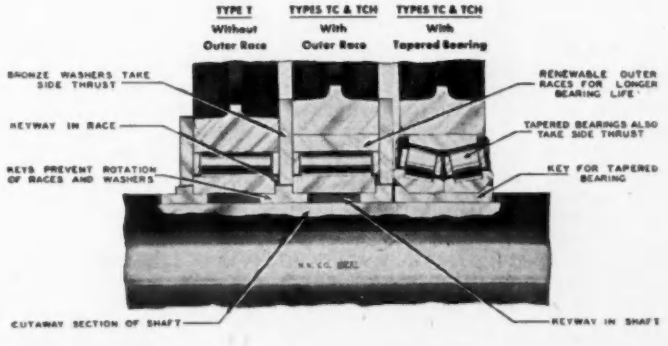
GENERAL SPECIFICATIONS

Rated Capacity, tons	300
Sheaves, diameter	48"
*Sheaves, API Groove, Size Line	1¼"
Upper Pin, diameter	3½"
Center Pin, diameter	10¼"
Lower Pin, diameter	7½"
Clevis Pins, diameter	4½"
Clevis, Depth and Width	11" x 6"
Side Plates, Distance Across and Length	51" x 88½"
Width Overall	34"
Length Overall, 548-T & 548-TC	9' 8"
Length Overall, 548-TCH	8' 0"
Net Weight, 548-T, pounds	11,251
Net Weight, 548-TC, pounds	11,928
Net Weight, 548-TCH, pounds	10,928

*These sheaves can be grooved for 1⅛" line when desired.



Note that very little disassembling is necessary to remove the sheaves from the Center Pin


TYPE T
Without Outer Race
TYPES TC & TCH
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TYPES TC & TCH
With Tapered Bearing
BRONZE WASHERS TAKE SIDE THRUST
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KEYS PREVENT ROTATION OF RACES AND WASHERS
RENEWABLE OUTER RACES FOR LONGER BEARING LIFE
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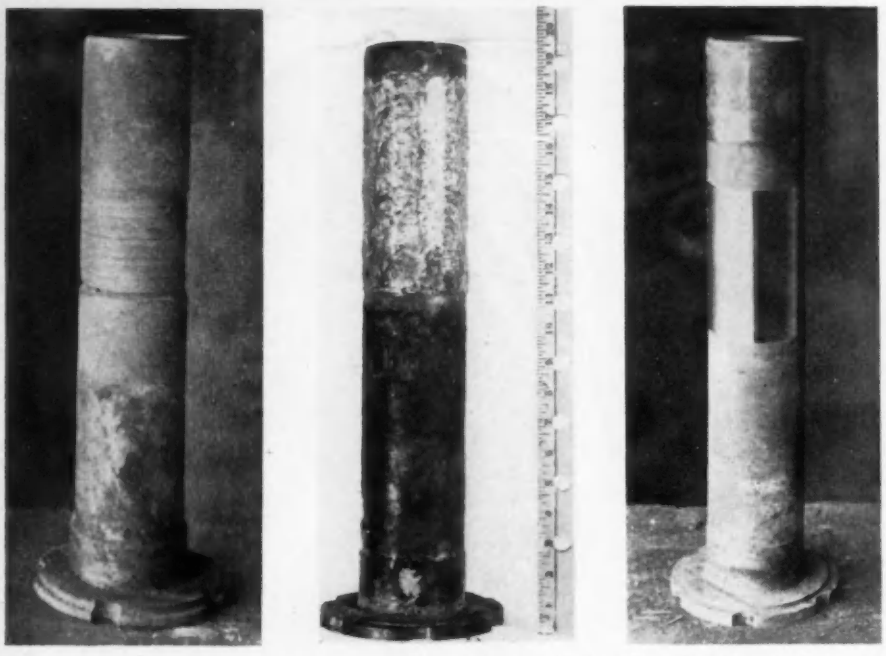


Photos courtesy "Fusion Facts" and Stoody Company.

Worn wash pipe, at left, shows exceptionally severe grooving as attempts were made to retain mud pressure by taking up on packing and the use of oversize rings as the pipe diameter shrunk. Checking of wear at intervals when the packing gland can be released without requiring special shut-down will permit replacement before wear has reached so advanced a stage.

Center, a wash pipe after the rebuilding has been completed. The hard-surfacing material, an alloy of tungsten, chromium and cobalt, is readily machined, and both corrosion and wear resistant without increasing the abrading away of the packing material.

Wash pipe, at right, has been reconditioned, with a ground packing area equal in surface to that initially furnished, and with built-in wearing qualities which insure a life at least equal to that obtained from the initial piece of equipment. Areas shown in the rough are those not subject to abrasion, erosion or serious corrosion during swivel service.

Hard-Facing of Wash Pipe Lengthens Swivel Life

By ELTON STERRETT, Staff Writer

THE wash pipe of a swivel must be packed off against full pressure of the mud stream, and then must revolve at table speed with the packing then acting as lap to reduce the area of the pipe across the width of the area contacted by the packing. This combination of pressure and abrasion, the latter factor increasing rapidly once the mud begins to work down into the packed zone, results in highly accelerated wear of the pipe in an area measuring from three to six inches along the cylindrical exterior of the unit. When mud begins to work through between the packing and the pipe it can be controlled only by stepping up the gland pressure which, in turn, accelerates wear.

Various methods of reconditioning worn wash pipes have been worked out, (See "Doubling Swivel Stem Service Through Metallizing," THE OIL WEEKLY, Vol. 113, No. 10; May 8, 1944), especially since wartime shortages have made it impossible to carry on hand replacement units which could be substituted for original equipment in case of failure. In areas where the mud returns carry fine sand which escapes trapping by the shale shaker screen, the replacement of pipes and the frequent repacking of the stuffing box constitute a serious item in the down time of the rig.

Following the success of mud facing as a means for prolonging the service life of tool joints, a number of drilling contractors have experimented with the application of the same type of metal to the wash pipe, with results which, in many instances, give service records surpassing those of the new pipe.

The application of the hard-facing metal calls for initial disassembly of the swivel, so that the wash pipe can be mounted in a lathe. Here the section abraded—amounting to the packing zone plus end clearance of from ½ to as much as one inch for the squeeze of the packing in the gland—is turned down until all abraded material has been removed and a clean section, unbroken by scoring or scratches, is obtained. Frequently it also is found advisable to carry this removal of oil metal well toward the end of the pipe, so as to provide against corrosion when the mud stream has worked out around pipe unprotected by the packing.

When the worn surfaces have been cleared up and the amount of hard-facing is determined, the pipe is preheated to about 300° F. and the low spots are built up with circumferential beads of the hard-facing material. Across these beads are laid longitudinal beads of the same material, until the eroded portion has been built up to about ⅛-inch higher than the finished diameter of the pipe.

When applying the circumferential beads, it is necessary only to rotate the pipe so as to facilitate application of the beads, the distribution of the metal around the pipe being such as to avoid shrinkage or warpage in the cylinder. The longitudinal beads, however, are best applied on quadrants. That is, when one longitudinal bead is laid the length of the low section, the pipe is rotated through approximately 90 degrees before the next is laid on. Some welders go even further, especially when the area to be filled is more than four inches across, and rotate 180 degrees between first and second, and again between third and fourth beads, making the sequence first by rotating the pipe clockwise and laying on the next with counterclockwise rotation. Since the wash pipe must center accurately in the packing gland to minimize abrasion and packing wear, extra care while laying on the beads is amply repaid by extended packing life and the consequent saving of rig time through use of time which otherwise would be lost while shut down for repacking the swivel stuffing box.

The hard-facing material which has found wide acceptance for this wash-pipe reconditioning is a nonferrous cast rod composed of tungsten, chromium and cobalt. This alloy has considerable ductility, forms a comparatively smooth, non-porous deposit and is readily machined, thus saving finishing time. The material has, when applied, an average hardness of 41-43 on the Rockwell C scale; is corrosion resistant, tough, and has high red hardness.

With the technique of hard-facing wash pipes worked out, much rig down time can be saved if the operation of restoring the pipe to original diameter through the packing area be not deferred too long. The hard-facing material gives best service, and the cost of the metal required is kept to a minimum, if the wear be checked and the packing zone be built up before the wear reaches a point 3/16-inch below the nominal outside diameter of the pipe.

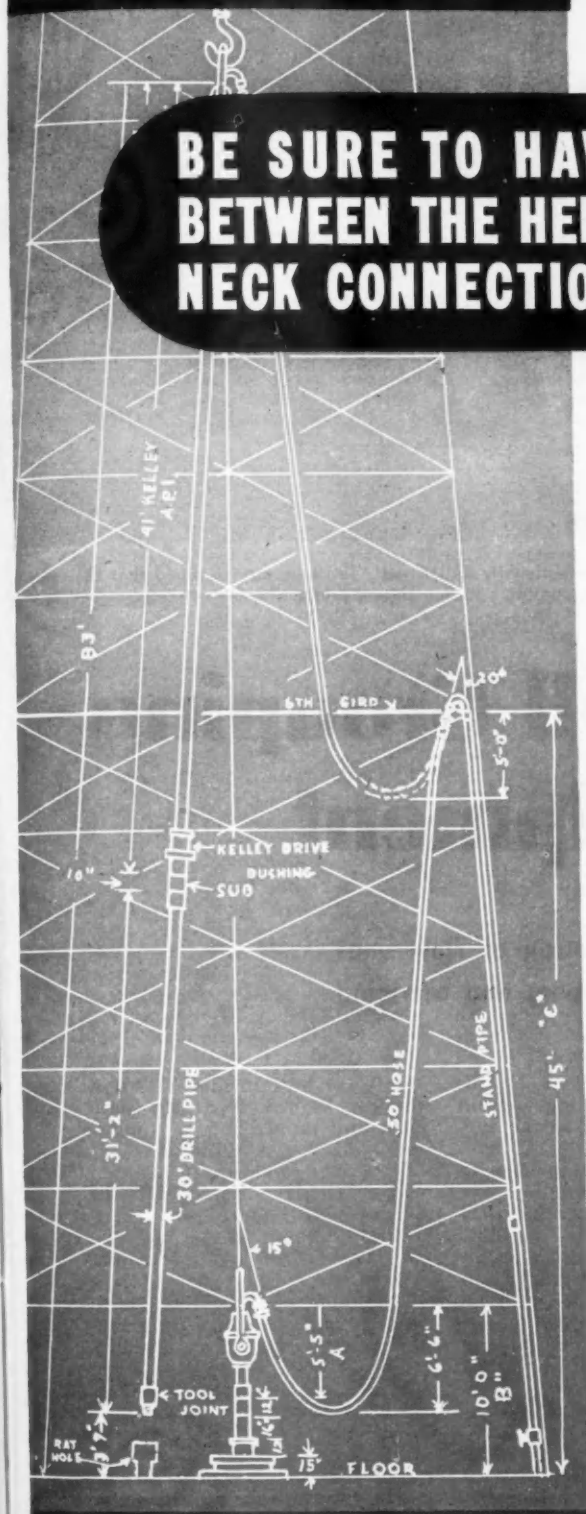
When wear exceeds this amount, building up a portion of the eroded section with a good high-carbon rod first will save hard-facing material, and will also provide a surface on which the facing metal can be laid most advantageously.

Some operators prefer to replace the wash pipe in the swivel after only a close turning job in the lathe, while others, saving on the turning time in the lathe, obtain a ground surface with the use of a tool-post grinder and a wheel adapted to cutting the hard-facing alloy. When grinding, one operator cautions against attempting to take more than a very fine finishing cut, as excessive wheel pressure tends to force particles of the wheel grit into the matrix of the facing fetal—in consequence the packing wear being greatly accelerated.

Cost figures show that, on one lot of three swivels, the saving in packing through hard-facing worn wash pipes paid for the application of the metal, leaving the saved down time as clear profit, to be added to the anticipated outlay for replacement pipes, had they not been reconditioned through building up the abraded area.

HOW TO MAKE YOUR GOODALL ROTARY HOSE LAST LONGER

(No. 3 of a Series)



BE SURE TO HAVE THE CORRECT RELATION BETWEEN THE HEIGHT OF THE STANDPIPE GOOSE-NECK CONNECTION AND THE LENGTH OF HOSE

IT IS considered good practice to have the height of the standpipe seven feet shorter than the length of the hose. For heaviest equipment, 55′ hose and 48′ standpipe should be used. The illustration (left), together with accompanying explanations, gives the correct relationship.

As there is practically nothing about a drilling hose to wear out, if it is properly installed and not abused by improper handling, its life should be good for considerably more footage than present day averages.

BY FOLLOWING THE SIMPLE RULES AS SET FORTH IN THIS SERIES OF ADVERTISEMENTS, IT SHOULD NOT BE UNUSUAL TO OBTAIN CONSIDERABLY MORE CIRCULATING HOURS FROM YOUR DRILLING HOSE.

GOODALL RUBBER CO INC — R G C INC

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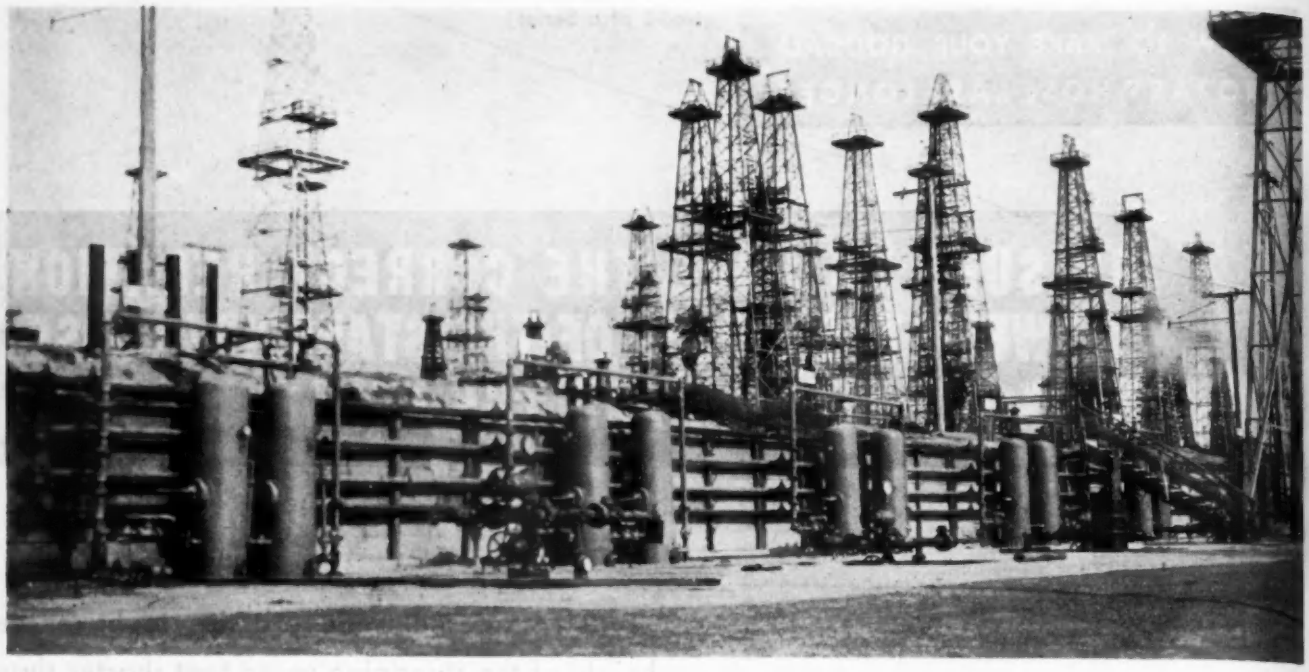


Each pair of separators, connected in series, represents the flow control from one directionally-drilled well. The units are so piped that they may be flowed normally, reversed, or bypassed, with provision for cutting out one pair of separators without losing production from the corresponding well.

Directional Well Grouping Saves Equipment

Unique setup allows concentration of flow lines and economy of supervision, piping and servicing

THE close grouping of producing wells, in installations such as Huntington Beach, California, enables the producing company to work out savings in flow equipment, and to standardize production to the point where there is little difference between well production and withdrawal of oil from a closely ranked battery of tanks, insofar as work of the switcher is concerned.

One such lease in the Huntington Beach area groups the directionally-drilled wells, finalled at specified distances below the ocean floor, in units of seven for convenience in servicing and flowing. The drilling was confined in a relatively narrow strip along the waterfront, obtained by levelling the ground to provide a continuous strip wide enough to accommodate the drilling rig and auxiliary equipment. A retaining wall flanks the high side of this strip, and serves as limit to activity in that direction. At the low side of the strip is located the access roadway, with tankage and other equipment set up in available areas on the farther side of a six-lane trunk highway which serves to delimit work away from the open waterfront. At the time the retaining wall is cast the concrete is poured for the working strip, with precast cellars at intervals as closely spaced as possible to provide for derrick mounting without overlapping producing wells at the surface.

The retaining wall is equipped with pipe line supporting hooks, set into the concrete on a standardized spacing program so as to accommodate the flow lines without individual "tailoring" to shape with the torch. Where hooks are not used, bolts are set into the wall, to be used in attaching vertical pipe standards at regular intervals, brackets being set on these pipes to carry toe horizontal runs between separators and flow leads.

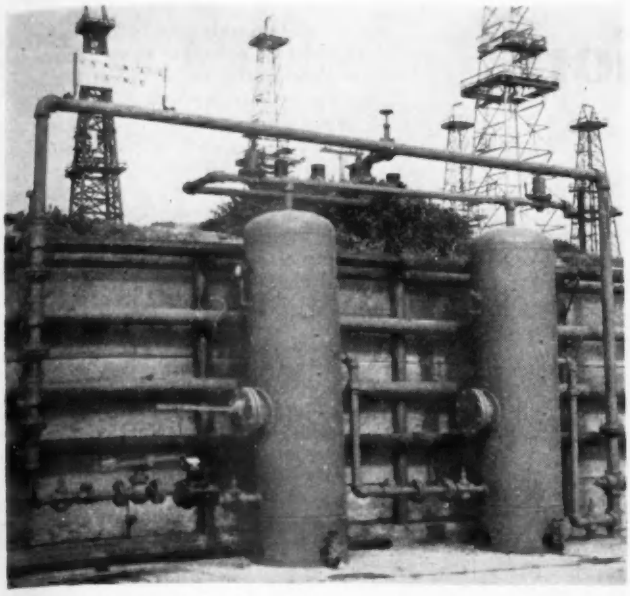
When a well is completed it is connected to the flow lines already in place below the concrete working apron, flow thus being carried below the floor to leave the area clear for work-over operations later. Dual connections on the standardized christmas tree, however, permit a supplemental flow line to be tied in above ground, in case of damage or derangement of the normal hook-up.

Separator Setting

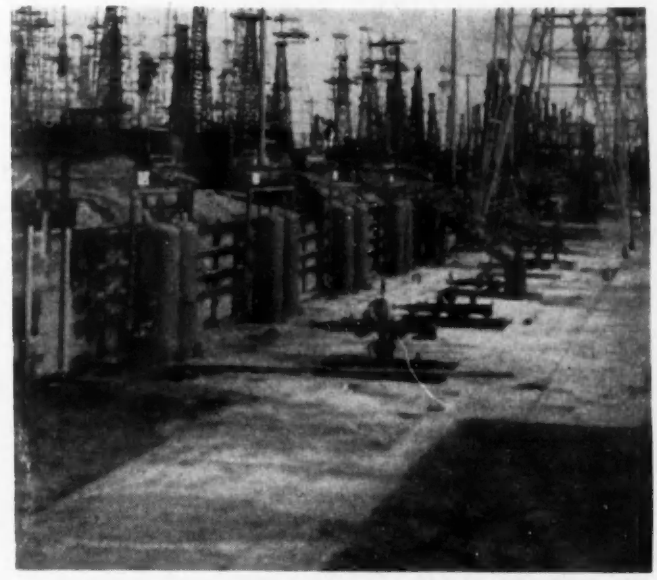
Two separators, connected in series, are used on the flow as it comes from the well. The first, or high-pressure unit, serves to remove most of the gas from the fluid, while the second unit acts to purify the flow further. Gas flow is from the top of the separator setting, with each unit tapped into a common collector main. A safety and vent provide for release of excessive pressures before the flow reaches the meter. Here the amount of gas is checked before being released to the common header, so as to maintain a record of gas production by each well of the battery.

The oil flowing from the low-pressure separator is led through a meter, then a pressure-reducing valve before being admitted to the riser. This riser is equipped with four tees, one tied through the block gate to each of the four collecting mains. Use of the four mains not only provides for staggered flow of various wells, but also gives excess capacity which may be utilized in case of damage to one of the lines as it passes below the wide, six-lane highway strip.

The riser which provides connection to the flow lines is also carried over above the twin-separator setting to a tie-in with the well flow line to permit complete bypassing of all production in case the separators require servicing and well production is to be maintained. A tee and branch from this bypass loop also provides venting or reintroduction of gas from the header into any one



Flow enters the set-up at the right, through underground connection from christmas tree, and is partially stripped in the high-pressure unit, then dried in the low-pressure separator, prior to being put selectively into any one of the four collecting mains mounted on the retaining wall behind the separator bank. The hook-up for each well is identical with all others, permitting standardization of connections and the maintenance of replacements with minimum stocks.



One servicing derrick serves each battery of seven wells, being shifted on steel rails which are integral with the concrete apron. All piping is carried below the paving, so as to leave unrestricted travel for the derrick over the wells it is intended to service. Spacing is such that the derrick may be operated on any well without hindering production at its neighbors.

unit, for purging or reëstablishing flow.

A single servicing derrick is provided for each seven wells, with provision for shift as desired. When the initial concrete apron is cast, a wide-gauge track, with span equal to that of the derrick legs, is put down, with the tops of the rails level with the working floor. This track extends from end to end of the lease, all piping and other connections being carried out below it so as to leave unrestricted travel.

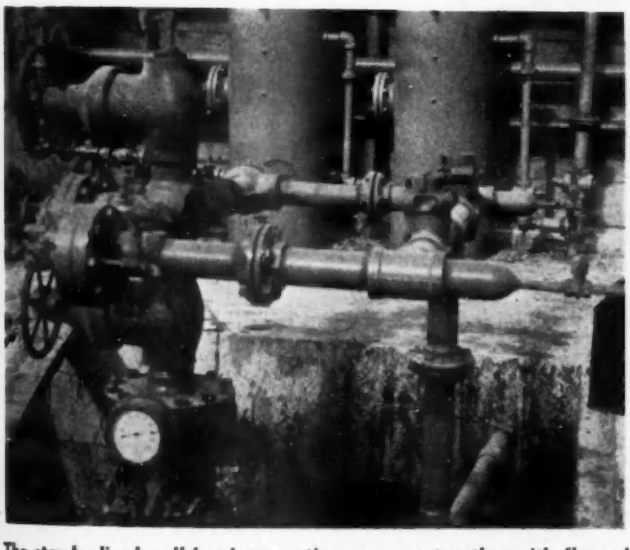
The single servicing derrick is provided with four jack-adjusted track wheels, carried just inside the base of the lowermost angles of the unit. When it is desired to move the derrick, these wheels are jacked downward until they contact the rails, and the lifting continued until the derrick itself is picked up and supported over the rails with sufficient clearance to permit travel along the rails.

When the unit arrives at the site of the well to be serviced, the jacks are retracted until the derrick rests on the supporting pads—a part of the original concrete job when the lease was prepared for production. These pads have built into them plates with threaded holes corresponding to the spacing of the holes in the anchoring angles at the bases of the derrick legs. Bolts run through the angles and made up tightly into the plates prevent overturning or shifting of the derrick during the servicing operation.

Power for the servicing operation is provided by a fixed battery of boilers, set up across the highway from the lease, and tied in to the operating section of the property through conduits carried below the paving.

The well-head connections are standardized, with the tee and tie-in between christmas tree and flow line flanged to provide dismantling without requiring the breaking of any threaded joints or the making up of odd-dimensioned nipples when the hook-up is remade. Sampling is obtained by cutting a small line and valve into the end of the bull plug at the end of the horizontal run from the tree on both casing and tubing leads.

The entire hook-up is designed to fit within the area of the cellar opening left through the concrete apron for drilling purposes, and the overall height is so figured as to bring everything below the lowest point on the service derrick braces, so that it may travel up and down the track to any point without interferring with production at any other well.



The standardized well-head connections are put together with flanged unions so that no threaded connections need be broken to permit any type of servicing operation. The set-up is fitted within the cellar aperture left through the concrete mat or working apron, and held below minimum clearance of servicing derrick members.

Wheels for transferring the derrick are mounted on jacks, contained within the angle of the derrick foot. The wheels are jacked down to raise the unit for shifting, then retracted to place the foot angles over precast bed plates for bolting the unit in place during the servicing operations.

Wage Stabilization

Drilling Industry should understand and make best use of program set up by WLB

FACED with perhaps the most acute manpower shortage since the beginning of the war, it becomes imperative that drilling contractors and the drilling industry understand and make the best use of the wage stabilization program that has been set up by the War Labor Board.

Uniform horizontal minimum and maximum wage rates for all drilling contractors for practically the entire United States were established in 1943. So far, few violations of the rates have been reported. Delays in getting schedules established have arisen and still are encountered however, due largely to failure on the part of operators to observe the nesessary procedure in making application. When the correct details of filling out the forms are neglected, or any step in the procedure is omitted, the operator is faced with the serious problem of delay in getting his schedule fixed. The War Labor Board has no alternative but to hold up the application until all requirements of the law are met.

In order to help any contractor who is starting business for the first time, or those resuming activities after return from the war possibly, the proper steps to be taken in setting up a wage schedule or obtaining retroactive approval of wage changes are presented.

Wage Brackets Fixed

The wage per hour brackets established and applied by the Eighth Regional War Labor Board for its Area III are:

Wage Classification	Min.	Max.
Driller	$1.58	$1.82
Derrickman	1.10	1.26
Engineman and fireman	1.05	1.21
Floorman and roughneck	.99	1.14

A part of the resolution establishing the wage brackets follows:

"Uniform wage brackets shall be established for the area comprising the following states: Alabama, Arkansas, Colorado, Florida, Georgia, Ihado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, Texas, Utah, Wisconsin and Wyoming, covering the following rotary drilling job. classifications of the petroleum industry: Rotary driller, rotary derrickman, rotary fireman, rotary floorman (rotary driller's helper, rotary helper, roughneck), rotary engineer (diesel or gas engine-oil field drilling) as defined in the 'Manual of Job Classification, Definitions and Training Times for Petroleum Production in District Two,' prepared by Manpower Sub-Committee of the District 2 production Committee, July 3, 1943."

In starting a new business, board approval is necessary for establishing a schedule of job classification and rates.

Existing establishments desiring to create a new job classification may do so without board approval under General Order 6-c, provided they establish rates for the particular job which bears the same relation to the rates or rate ranges for similar classifications in the area as the existing rates or rate ranges in the plant bear to comparable rates or rate ranges in the area.

Any employer desiring to establish single rates in the drilling industry may apply to the War Labor Board for the rate which must not be in excess of the minimum of the appropriate bracket.

Eight or More Employes

Those desiring a rate range may request approval for a minimum and maximum rate providing the maximum is not in excess of the maximum of the bracket and the middle-point of the proposed range does not exceed the minimum of the bracket and providing further that the spread between the minimum and maximum of the proposed range does not exceed 30 percent of the minimum.

All employers operating in the drilling industry with more than eight employes are subject to the jurisdiction of the War Labor Board. No exception has been granted to oil well drilling, from General Order 4 which applies to exemption of employers or not more than eight individuals.

Any employe that meets requirements of executive or administrative positions as defined under Section 1, General Order No. 9, is under the jurisdiction of the Salary Stabilization Unit of the Treasury Department, and that agency should be contacted for approvals of any rates or adjustments in rates.

In requesting approval for adjustments in rate of pay or established classifications and rate of pay for new concerns, the application should be submitted on National War Labor Board Form 10, to the nearest Wage and Hour office. Specific information on filling out this form is attached to each set of blanks.

Where new jobs are created, if an employer desires a ruling as to whether it requires War Labor Board approval, he may submit the question on War Labor Board Form 1, to the nearest Wage and Hour office, for a ruling.

Any employer who has made adjustments in rates of pay without board approval should contact his nearest Wage and Hour office for information as to corrective procedure and the necessary steps to take with reference to obtaining retroactive approval of the change in rates.

In carrying out its enforcement of the law against the making of unauthorized wage adjustments as part of the emergency war program and to prevent wage and price inflation, the War Labor Board has developed certain principles which it is believed should be emphasized as an aid to employers in understanding the policies and procedures of the board. They are as follows:

1. The primary objectives of the enforcement program are the elimination of unlawful and unstabilizing wage practices, and the protection of employers and employes who do comply with the rules.

2. Like all other phases of the board's work, authority to determine whether a violation exists and, in appropriate cases, to reduce or eliminate the penalties provided by law, is exercised by tripartite divisions of the regional boards consisting of an equal number of representatives of employers, employes and the public. The tripartite character of each such division enables it to appraise fairly and understandingly the variety of circumstances under which violations occur and to give just consideration in each case to the existence of extenuating circumstances.

Appeals Possible

3. No penalties may be assessed against an employer without his consent except after a hearing and decision by a tripartite division. There is a right of appeal from any such decision to the National War Labor Board in Washington.

4. The board's experience has shown, however, that the great majority of cases can be settled with the employer's consent through a simple and informal procedure which does not involve expensive or protracted hearings. Each such voluntary settlement is presented to and acted upon by the tripartite division.

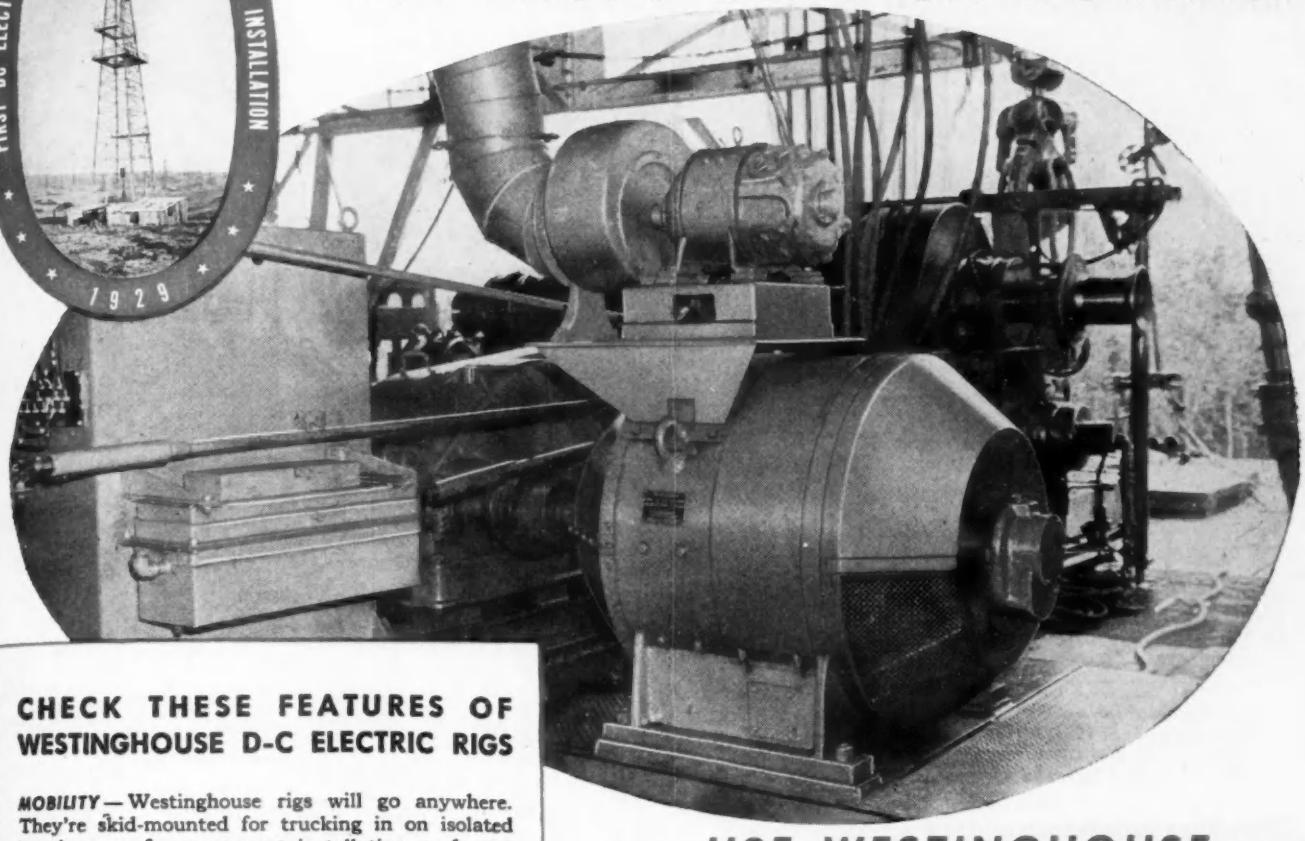
5. In the normal case it is not necessary for employers to engage special or technical consultants, although they may, of course, be represented in any proceeding by anyone they choose. Complaints have been made to the board, however, that certain individuals have exaggerated the potential penalties that are likely to be incurred and have claimed special ability to achieve lenient disposition of cases. Any such claims are wholly unwarranted.

No Penalty Formula

6. In any case where it is found that improper payments have been made under extenuating circumstances, the prescribed penalties may be reduced or eliminated. The severity of the full sanctions provided by law is reserved for the cases which involve intentional and willful violators as, for example, the second offender or one who has put an adjustment in effect after disapproval by the board or one who has failed to discontinue an unauthorized adjustment after being directed to do so by the board.

7. There is no mechanical formula by which the amount of penalty can be determined in advance in any case. Each case must be decided on its own particular facts. The employer's voluntary disclosure of the facts and prompt cooperation in discontinuing unauthorized and unstabilized rates or practices are regarded as important indications or extenuating circumstances. The immediate discontinuance of unlawful and unstabilizing rates or practices is an absolute condition in any case where the board is asked to reduce or withhold the prescribed penalties.

for more time on bottom



CHECK THESE FEATURES OF WESTINGHOUSE D-C ELECTRIC RIGS

MOBILITY—Westinghouse rigs will go anywhere. They're skid-mounted for trucking in on isolated locations, or for permanent installation on barges or trailers. Units are light—easy to handle.

FLEXIBILITY—When the power is transmitted through electric cables, you can locate your power plant and slush pits, relative to the derrick floor, to meet any condition—no time lost in adapting rig to a new location.

EASE OF INSTALLATION—Electric drilling rigs are ready to go, almost as soon as they're hauled in on the lease—connect flexible power cables, and plug in foolproof control circuits.

SMOOTHNESS OF OPERATION—Electric control gives smooth, fast load pickup—with no engine stalling. Full power for hoisting—or drilling—is instantly available through pushbutton control at the draw-works.

ECONOMY—Drilling costs you less per foot of hole with Westinghouse electric rigs—you save setup and drilling time. You'll save on maintenance costs, too, with reliable, economical drive.

EXPERIENCE—Since 1929 Westinghouse has built over 40 d-c electric rigs—and has had actual rig and field experience on every type—cable tool or rotary, deep or shallow drilling, a-c or d-c power.

. . . USE WESTINGHOUSE ELECTRIC DRILLING RIGS

Experience—that's one big difference between a driller and a roustabout.

Experience is important in equipment manufacture, too. It's an outstanding reason why you'll get *more time on bottom* with Westinghouse electric rigs.

The a-c twin-motor drive for cable tool rigs was a Westinghouse development—and the *first* "automatic feed" alternating-current drive, as well as the first direct-current variable voltage drive for rotary rigs were built by Westinghouse—designs based on *actual rig and field experience*.

Today, when the emphasis is on deeper holes—more wildcatting—that kind of experience pays off—whether you're drilling deep or shallow wells—isolated leases or proved fields. Westinghouse has had years of experience on every type of electric rig, from the simple single-generator, semi-electric rig to the modern full-electric, multiple-generator rig.

More than forty d-c rigs built since 1929 are tangible proof that, under *any* drilling conditions, Westinghouse electric rigs will give you more time on bottom—*at less cost*. Call your nearest Westinghouse representative for complete information . . . or write direct for your copy of Booklet 3038. Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa.

J-94674

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PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

ELECTRICAL EQUIPMENT FOR THE PETROLEUM INDUSTRY

DRILLING HINTS

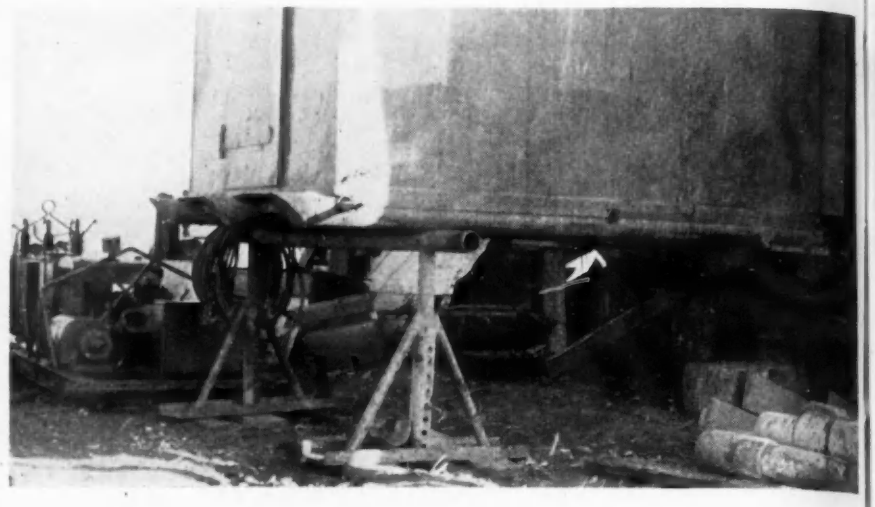
Derrick-Floor Mounting of Dog House Reduces Underpinning Required

Leveling of the dog house at the derrick floor is simplified if the method of mounting involves resting the front end of the structure on the derrick sills, as register between the two floors is then insured by the location of the supporting lugs or brackets on the sill.

DERRICK QUARTERS

To provide for uneven ground at the farther end of the house, a cross member is used, composed of a transverse pipe section with two vertical members, each of these sliding within a post supported on a channel iron or doubled pipe base. The vertical members and the supports are both drilled with holes which may be matched at different levels, with a retaining pin slipped through matching holes when the desired level of the doghouse floor has been attained.

If the mounting is not more than three or four feet above ground level, no steps need be installed at the escape door end, but for greater elevation there should be provided a small landing or platform, and a flight of steps with risers not more than ten inches each.



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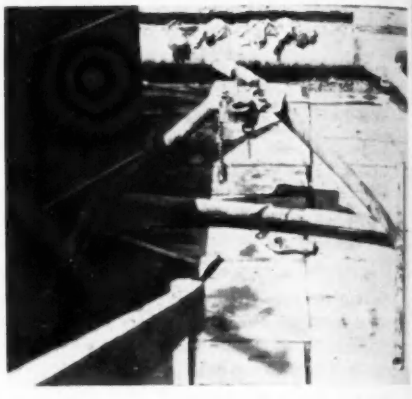
Piston Workover Vise Support Speeds Reconditioning

Mud pump pistons and rods require an especially rigid mounting for the vise in which they are clamped for workover or maintenance, due to the extra care which must be exercised to insure against working loose of the piston on the rod when under high pressures. Since a "cheater" of four or five feet on the wrench handle is customary on these pump repair jobs, provision must be made against overturning of the entire mount while a hefty crewman jumps on the "cheater."

MUD PUMP SERVICING

One contractor fabricated a vise stand of extra-heavy pipe scrap, with the two supporting members each about six feet in length, and separated by nearly that distance. A heavy tie just above these supports prevents spreading of the sloping pipe members which support the vise pad, and adds rigidity against twisting.

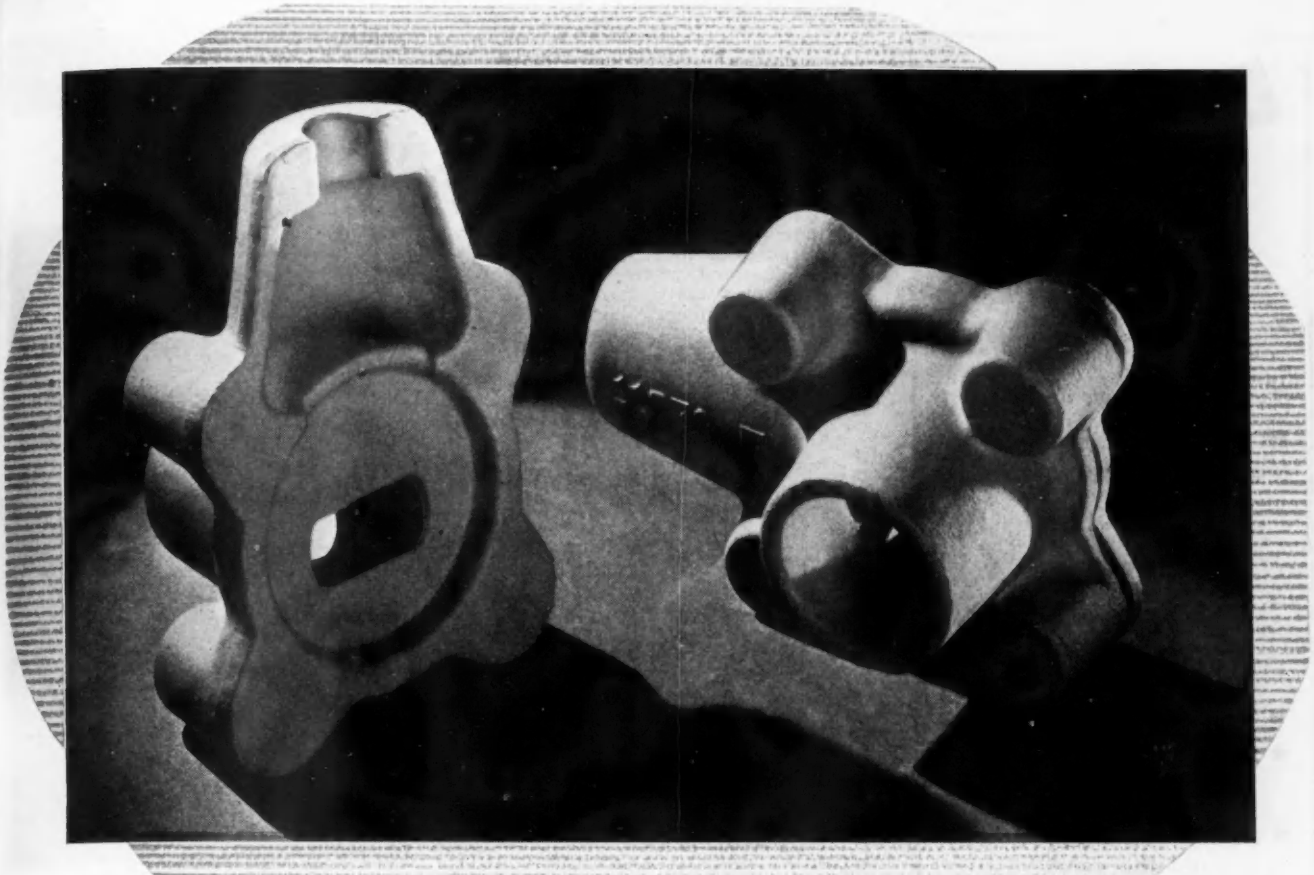


Boiler Hand-Hole Covers Serve as Baking Units

When a boiler is lagged, it is usual to provide a cover, shaped much like a safety hat, to fit over the hand-hole bolts and prevent the entry of rain through these breaks in the steel jacketing over the insulating material. These covers, fastened to the lagging with one or more stove bolts, have been found to serve an auxiliary purpose entirely foreign to the one for which they were designed.

BOILER GADGET

Crews on wells being drilled in the Ventura field, California, have discovered that the "tin hats" on the boilers form an excellent oven. Some time before a meal, washed and greased potatoes are placed around the hand-hole opening, and the cover replaced. After a normal baking period, corresponding to the size of the potatoes, the cover is removed and the potatoes are found to be as evenly baked as though prepared by a high-priced chef in a fully gadgeted oven.



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Scrap Drum Becomes Collector for Waste Cups

RIG FLOOR HOUSEKEEPING

Paper cups are provided near the water cooler on most rigs, with the dispenser mounted where it will be protected from weather, dirt from the floor, and accidental damage from cat lines or normal rig operation On many of these rigs, the care of the cups ends with having them ready for use, with the result that the used cups are thrown from the rig, where they lie around in an unsightly array, and also serve as possible mosquito breeding places

One rig, setting the water cooler on an old oil drum to get it off the floor and at the most convenient height to use, takes advantage of the space within the drum by cutting a wide "window" in the front and using the container thus formed for the cups after use The drum may be cleaned out easily without moving the cooler, the waste cups being collected in a sack and taken to the rig dump.

A few small holes, punched, drilled or burned through the bottom head of the drum, permit any water which may be thrown into the collector with the cups to drain off and leave the cups dry.

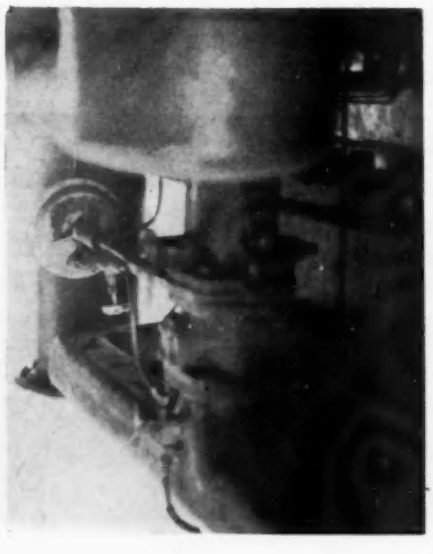
Vacuum Remote Control Reduces Equipment Linkage

ENGINE CONTROLS

When two or more engines are compounded to drive the drilling rig, one contractor has found that the throttles of Nos. 2 and 3 engines can be controlled most effectively through the operation of the engine nearest the driller, without requiring a set of complicated attachments and linkage to transmit the control manually to the farther away one of the power units.

Vacuum controls are mounted on the second and succeeding engines, so that as the power output of the No. 1 engine is stepped up by manipulation of the hand throttle, the increased vacuum in the intake manifold of this engine operated a booster which in turn puts vacuum on a device located on No. 2 engine, opening that unit's throttle to correspond with the increased output of the first unit. A similar unit on No. 3 engine would be controlled by the suction demand of No. 2, and so on for as many engines as might be set up to provide rig power.

For starting or idling any of the individual units in the drive set-up a bypass valve is cut into the vacuum control linkage so that manual control may be used for separate regulation.



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A small replaceable bushing takes the wear instead of the more expensive valve seat—greatly increasing valve seat life. This means lower replacement costs and less time spent changing valve seats. Since the seat stays in the pump longer without removal, danger of washouts between seat and deck is reduced.

New, Compound-308 Inserts last from three to five times as long as regular inserts in ordinary mud, and up to ten times longer than ordinary oil resisting inserts in hot mud, treated mud, or oil and gas.

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Colombia Holdings of Major Companies Are Now in Excess of 41 Million Acres

A total of 41,250,461 acres of land are involved in operating commitments of subsidiaries of major oil companies organized to conduct exploration and exploitation in Colombia. This total covers agreements now in force and concession negotiations in progress that are expected to be announced by the Colombian government this year. Private leaseholds and holdings in fee are included in the figure.

Ten Firms Active

Ten major companies are now actively interested in Colombia. Of these, Tropical Oil Company, Royal Dutch Shell and Socony-Vacuum Oil Company have wholly-owned proved production, and Socony-Vacuum and The Texas Company are joint operators of the Barco fields, through Colombian Petroleum Company. Richmond Petroleum (Standard Oil Company of California) has been conducting wildcatting operations for several years in northern and central Colombia concessions, while subsidiaries of the Texas and Gulf companies are scheduled to begin exploratory drilling soon. Equipment is now being shipped in. Sinclair and Phillips interests are acquiring concession and lease rights and may begin drilling by 1946. Tide Water and Continental are in process of negotiating concession grants.

A special contract is in force on Tropical's De Mares concession of 1,250,000 acres. In addition, this company holds at least 29 other separate concession tracts in the country, totalling 7,202,449 acres, of which 342,000 acres are subject to drilling contract commitments.

Another special contract applies to Colombian Petroleum Company's operations in the Barco tracts, aggregating 475,000 acres.

Shell companies have assumed contract obligations on tracts totalling 1,216,502 acres and hold clear concession rights to an additional 1,093,844 acres in Colombia. Texas subsidiaries have acquired 3,203,886 acres by concession grants, of which 740,995 acres are subject to exploration contract stipulations. This group also has large fee properties.

Colombian subsidiaries of Socony-Vacuum control concessions amounting to 1,905,622 acres, plus 434,769 acres of exploration contract lands. Richmond holds 1,971,726 acres of uncontracted concession tracts and 561,601 acres of contract lands. Gulf interests have the rights on 830,048 acres, of which about 70 percent involve drilling contract requirements. Private concessions now in force involve only 267,668 acres.

More Acreage Sought

All of the companies listed have petitions and bids for additional concession grants filed and pending formal acceptance. At the end of March the lands involved in this category amounted to approximately 18,500,000 acres, with additional bids having been filed in the meantime.

Phillips Petroleum Company of Colombia has secured private leases on 750,000 acres of land, and Richmond is reported to have even larger leaseholdings along the upper Magdalena. Texas Petroleum Company of Colombia is believed to be the leading owner of fee property, in the Teran tract of extreme western Boyaca. The combined area of Colombia private properties held in fee or under lease, and on record in Bogota, amounts to 2,710,000 acres. These holdings carry drilling commitments. Total national lands subject to drilling obligations under current concession contracts and grants comprise 3,752,382 acres, held by the Tropical, Socony-Vacuum, Shell, Texas, Richmond and Gulf companies.

Shell's Mara Stepout Holds Interest In Venezuela

After cementing surface casing at 617 feet during the last week of March, Caribbean Petroleum Company's DM-3 well (Royal Dutch Shell) was drilling below 3200 feet on April 19, according to reliable reports.

The site is one kilometer south of the DM-2 discovery well completed by the same company early in March, with Creole Petroleum Corporation and the Texas Company participating, for joint appraisal of the Cretaceous producing possibilities of northern Mara. The new field is 43 kilometers northwest of Maracaibo, Venezuela.

If DM-3 is as sucessful as the 5000 barrel-per-day DM-2 well, a Cretaceous play now getting under way in the Mara district will likely develop into a boom in a few months. The DM-3 extension test is therefore regarded as the most interesting well now being drilled in Venezuela, from the standpoint of the number of major and independent companies holding concession and lease rights in the area, and the effect that results of the well's completion will have on drilling plans in Mara in the immediate future.

Creole Adds 20 Producing Venezuela Wells In April

Creole Petroleum Corporation posted 20 producing well completions in Venezuela during April, as compared with 16 in March, 11 in February, and 14 in January. Nine of the new wells are in the Jusepin field, where one dry hole was also put down in April. The Mulata field had 5 April producers, 2 were added in the San Joaquin field, 1 at Quiriquire, and 3 in the Lake area.

The three Lake wells had an average initial producing rate of 2719 barrels daily, while the San Joaquin completions tested 1482 barrels; Mulata, 415 barrels; Jusepin, 425 barrels; and the single new Quiriquire well, 343 barrels. Average completion depths were, in the same order: 4705, 6787, 5466, 5159 and 4701 feet.

Total Creole-operated production for the month was 13,236,570 barrels, an average of 441,219 barrels daily, as compared with 425,084 in March, 407,935 in February, and 390,245 in January. Current production rate is approximately 90,000 barrels daily in excess of that of a year ago on the basis of comparative March and April output rates.

Shell's Fifth Dificil Well Nearing Completion Stage

Royal Dutch Shell's fifth Dificil field test in northern Colombia was reported at completion stage early in May. The last verified depth of the No. 5 well was 5710 feet on April 23.

Total depths of the four wells previously drilled at Dificil ranged from 5810 to 6120 feet. No production was obtained in the deepest of these (No. 2). No. 1 was completed in 1943 as a dual producer, testing 54 barrels daily of 45-gravity oil and 750 barrels daily of 40.6-gravity oil. The next two wells were dry, but No. 4, the shallowest of all, had an announced initial of 430 barrels per day of 47-gravity oil.

Persian Gulf Field Due To Ship Oil Next Year

Oil will be shipped from the Kuwait field on the Persian Gulf early next year, according to Gulf Oil Corporation. This will be the first oil from this field, considered among the world's major petroleum reserves, to reach the commercial market. The concession was acquired more than 11 years ago, and nine wells have been completed which proved sizeable crude reserves. Recent estimates give Kuwait approximately 25 percent of Middle Eastern oil.

Kuwait oil will be sold as crude, probably in the Middle East. The Far East may also be a market until its producing and refining facilities can be restored. Southern Europe also is a likely place for consumers of Middle East oil.

Extensive production and marketing of oil from the Middle East hinges on whether or not the Saudi Arabian pipe line is built. This carrier would tie in with producing facilities in Kuwait and extend to the eastern end of the Mediterranean. It would cut out the high transport charge on oil going through the Suez Canal by tanker around the Red Sea and into the Mediterranean.

Floresanto Drilling

Sinu Oil Company (Socony-Tropical) reported that drilling has been resumed at Floresanto 1, wildcat near the Caribbean coast, southwest of Covenas, Colombia. This operation was shut down for about two months at 6264 feet because of exhaustion of fuel oil supply.

Military and Civilian Needs Absorb Record Output of Petroleum Products

Both production and refinery processing of crude oil further increased and again set all-time records in the week ended May 26, reports to the American Petroleum Institute revealed. Likewise, there continued evidently a heavy use of imported crudes at refineries, as runs to stills exceeded domestic crude production for the second week in a row. Because of the indicated large imports, there has been no material change recently in the stocks of crude oil in the United States.

While current operations have been at record levels, the output of principal products has been fully absorbed in the markets, with both military and civilian requirements continuing great. Residual fuel oil demand has been even greater than available current supply and there has been a continued withdrawal from storage, which again went to a new low for the past two decades as of May 26. Distillate fuel oil also was in abnormally large demand, because of the urgent needs in the Pacific war, and instead of increasing as normally at this time of the year the stocks of those lighter oils also were reduced. Gasoline moved into consumption channels in about normal volume, and stocks were reduced as usual at this season.

United States production of crude averaged 4,887,000 barrels daily in the week of May 26, up 20,000 from the week before and 373,000 a day or 8.3 percent more than output in the corresponding week last year. Crude runs to stills averaged 4,950,000 barrels daily, an increase of 42,000 barrels over the daily average of the previous week and 389,000 a day or 8.5 percent over the runs in the comparable week last year. Stocks of refinable crude in the country totaled 221,861,000 barrels May 19, the Bureau of Mines reported. That was a minor increase from one week previously but was 12,562,000 barrels or 5.4 percent less than the 234,423,000 barrels held May 20 last year. The present inventory is only about 3,000,000 barrels above the 23-year low reached in early March this year.

Gasoline production, including natural blended at refineries, totaled 15,194,000 barrels in the week ended May 26, a decrease of 75,000 from the week before although 1,832,000 barrels or nearly 14 percent more than production in the like week last year. Stocks of finished and unfinished gasoline were reduced during the week by 552,000 barrels or an average of 79,000 daily, which was about a normal or less than normal decline for the season. The 89,121,000 barrels held May 26 was nearly 3,000,000 barrels or over 3 percent more than the 86,263,000 barrels reported for May 27 last year. Of the draft of over 500,000 barrels from storage during the week the greater portion was from military grades. Civilian grade gasoline stocks were reduced 99,000 barrels in declining to 48,265,000 barrels, and the latter amount was practically the same as the 48,296,000 barrels of civilian grade held one year previously. Military and other grades were taken from storage in the amount of 453,000 barrels and the 40,856,000 barrels held May 26 was about 3,000,000 barrels more than the 37,967,000 barrels held on the corresponding date last year.

Gas oil and distillate fuel oil production totaled 4,667,000 barrels in the 7 days ended May 26, a decrease of 374,000 barrels from the week before and 238,000 barrels or 4.8 percent less than output in the like week last year. Stocks were reduced during the week by 286,000 barrels and declined to 29,184,000 barrels. That quantity was nearly 3 million barrels or 9 percent less than the 32,074,000 barrels held a year earlier.

Residual fuel oil production totaled 9,670,000 barrels during the week, up 24,000 from the week before and 1,236,000 barrels or 14.6 percent more than output in the corresponding week last year. However, stocks were lowered 76,000 barrels, having decreased to 50,617,000 barrels, a new low since World War I times. This new total was 12,069,000 barrels or 23.4 percent less than the 50,617,000 barrels on hand a year ago.

Texas Well Permits

Permits to drill 159 new wells in Texas were approved by the Railroad Commission last week. There were 41 locations in North Texas, 38 in West Texas, and 32 in Southwest Texas.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.
(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

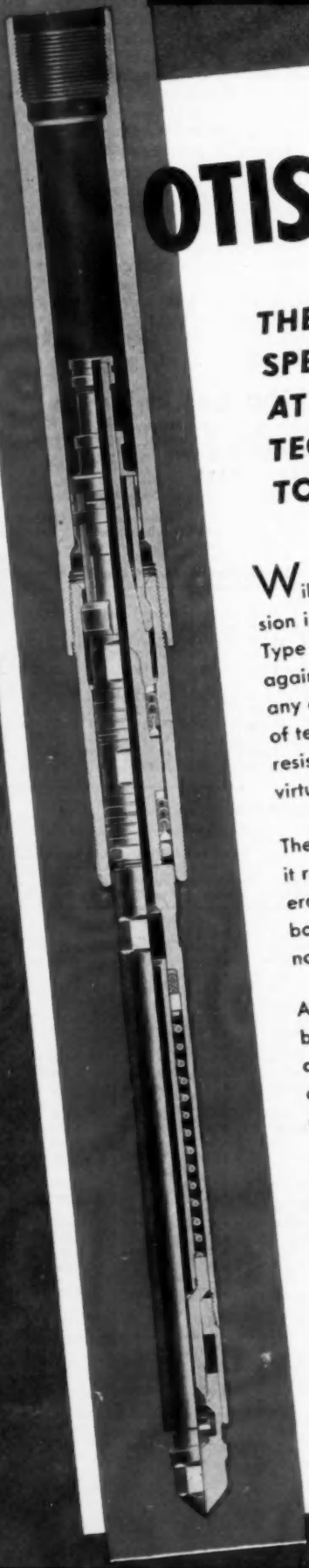
ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1941	4,337	11–22	4,120	10–18	266,187	3–29	99,727	3–29	[1]54,983	11–15	102,448	1– 4
1942	4,337	2– 7	3,961	1– 3	263,208	3–28	[1]109,281	3–14	47,861	11–14	95,857	1– 3
1943	4,436	11–13	4,331	12– 4	245,752	5–29	94,159	3–20	47,187	11–27	72,881	1– 2
1944	4,762	9–30	4,798	12–30	240,992	1– 1	89,162	4– 1	48,863	10–28	64,744	10– 7
1945	[1]4,887	5–26	[1]4,950	5–26	223,782	4– 7	99,012	[3]3–24	38,298	1– 6	56,074	1– 6
Lows:												
1939	[2]1,601	8–26	3,125	2–18	[2]229,127	10–12	71,152	10– 7	20,722	4–15	105,397	4– 8
1941	3,364	1–11	3,490	1–18	240,399	11–15	79,923	10– 4	28,382	4–12	90,914	7–12
1942	3,297	7– 4	3,393	5–23	231,896	12–12	75,934	12– 5	29,240	4–25	72,962	12–26
1943	3,821	1– 9	3,579	3–13	232,191	1– 9	68,182	10–16	30,732	4– 3	57,596	12–25
1944	4,357	1– 1	4,228	2–12	220,258	9– 9	76,302	1– 1	30,232	4–19	49,737	3–18
1945	4,678	1– 6	4,656	1– 6	[4]218,675	3– 3	86,616	1– 6	26,483	3–17	38,548	5–26

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,330
January 29	4,409	4,359	240,251	13,427	81,075	4,054	37,266	8,889	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,013	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,342	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,533	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	220,258	14,611	80,880	4,056	44,436	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
1945:									
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,651	9,252	51,119
February 24	4,777	[1]4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 31	4,781	4,677	223,782	14,644	98,758	4,548	26,889	9,184	41,745
April 28	4,805	4,780	223,474	14,633	94,068	4,636	28,273	9,379	39,813
May 5	4,839	4,786	221,019	14,846	91,341	4,695	28,800	9,278	39,503
May 12	4,860	[1]4,850	221,596	15,137	89,950	4,749	28,996	9,610	38,948
May 19	[1]4,867	[1]4,908	221,861	15,269	89,673	5,041	29,470	9,646	38,624
May 26, 1945	**4,887**	**4,950**	.....	**15,194**	**89,120**	**4,667**	**29,184**	**9,670**	**38,548**
May 27, 1944	4,514	4,561	[5]234,423	13,562	86,263	4,905	32,074	8,434	50,617
Change:									
In week	+20	+42	+265	—75	—553	—374	—286	+24	—76
In year	+373	+389	—12,562	+1,832	+2,857	—238	—2,890	+1,236	—12,069
In year	+8.3%	+8.5%	—5.4%	—13.7%	+3.3%	—4.8%	—9.0%	+14.6%	—23.4%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922 due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, May 20, 1944.

Safeguard Your Well



OTIS TYPE FJ SAFETY VALVE

THE TYPE FJ REMOVABLE SAFETY VALVE SEATS IN SPECIAL LANDING NIPPLE WHICH IS INSTALLED AT THE TIME WELL IS TUBED . . . POSITIVE PROTECTION FOR ANY SUB-SURFACE CONDITION UP TO 10,000 P.S.I. AND 350° TEMPERATURE

Wild wells, resulting from failure of tubing or of Surface Connections due to corrosion in high-pressure gas-distillate wells can be eliminated through the use of an OTIS Type FJ Safety Valve. It automatically shuts off the well . . . providing positive protection against uncontrolled flow in the event tubing or surface connections are damaged from any cause. This new Safety Valve is constructed for use under all conditions, regardless of temperature or pressure. The specially designed and fabricated asbestos-base heat-resisting packing withstands the highest subsurface temperatures and pressures. It is virtually inert to acids, alkalies and sour crudes.

The Type FJ Safety Valve differs from the Type FB, shown on the opposite page, in that it requires a special Landing Nipple. This Landing Nipple is installed in the tubing, preferably near bottom, and does not interfere with the free use of bottom hole pressure bombs, samplers, etc. With the packing designed to closely fit the Landing Nipple, it is not necessary to flow the well to "set" the packing.

A new feature in the design of the Type FJ Safety Valve incorporates a relative motion between the slip carrier and mandrel which, when jarring the assembly to the down or pulling position, breaks any bond of sand or other foreign material that may have accumulated. The assembly must be in the down position before the pulling tool can engage the slip carrier.

The FJ Safety Valve is run and pulled under pressure, like all other OTIS Sub-Surface Tools, on an ordinary steel measuring line. The present packing assures a positive shut-off regardless of the pressures or temperatures encountered.

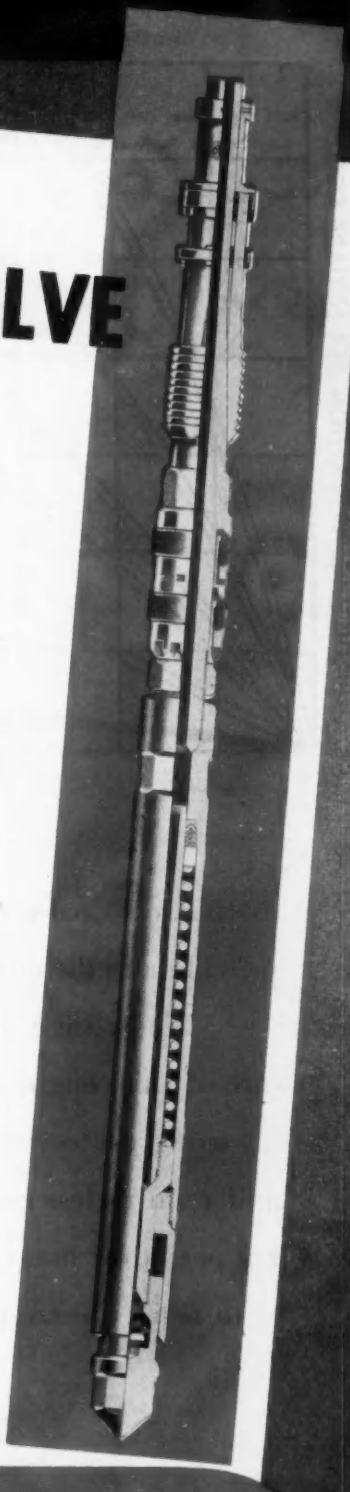
The installation of an FJ Landing Nipple is recommended in every string of tubing where the use of sub-surface controls may become necessary.

PRESSURE CONTROL - OTIS - SERVICE - EQUIPMENT

AGAINST BLOWOUTS DUE TO CORRODED TUBING...

OTIS TYPE FB SAFETY VALVE

THE TYPE FB SAFETY VALVE DOES NOT REQUIRE SPECIAL LANDING NIPPLE . . . CAN BE SET AFTER WELL IS TUBED AT ANY DEPTH WHERE SUB-SURFACE CONDITIONS DO NOT EXCEED 4000 P.S.I. OR 180° TEMPERATURE



The Type FB Safety Valve is simple, yet very positive in action. Set securely anywhere in the tubing, it is a sure safeguard against wells running wild due to failure of tubing or surface connections from corrosion or any other cause. A differential valve completely closes off flow through the tubing whenever the pressure differential across the Safety Valve exceeds a predetermined amount.

The FB Safety Valve is equipped with the standard OTIS Type B locking device successfully used on thousands of OTIS Sub-Surface tool installations. Designed primarily for use in Gas, Condensate, and high Gas-Oil Ratio wells, it can be made to perform equally well in low pressure wells. The streamlined flow course through the tool makes it highly efficient in wells having an abrasive flow stream.

Wherever there is the slightest danger of corrosion damaging tubing or surface connections to the point of failure—the Type FB Safety Valve will automatically shut off the tubing flow and prevent the well from running wild.

The FB Safety Valve, like all other OTIS Sub-Surface Tools, can be run and pulled under pressure on an ordinary steel measuring line without removing the tubing.

OTIS PRESSURE CONTROL, INC.

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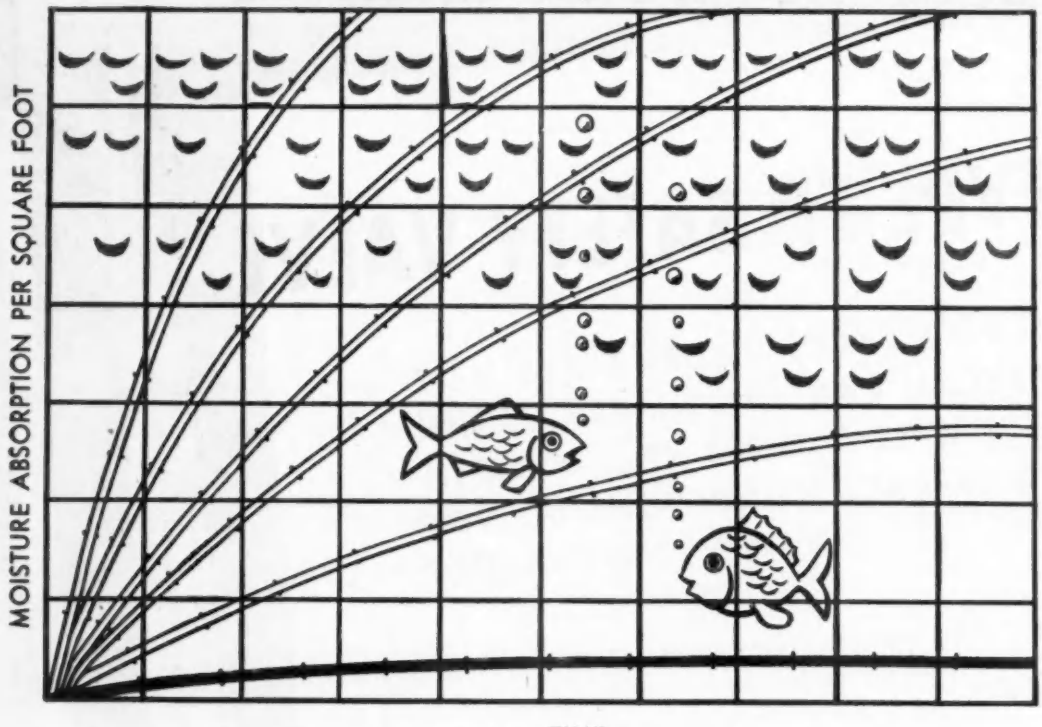
Representatives: Otis Eastern Service, Inc., Wellsville, N. Y.; Western Pressure Control, Los Angeles and Bakersfield, Calif.

Export Office: 74 Trinity Place, New York City

ECONOMICS OF CATHODIC PROTECTION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Barrett Coal-tar Enamels, because of their resistance to moisture absorption, provide an efficient electrical insulation over long periods of time.

Their high dielectric strength makes cathodic protection economical. Aware of this, engineers are today designing corrosion-proof pipelines, using protective coatings which have high electrical insulation values and require less current and equipment to make cathodic protection economical. Over a period of many years Barrett Coal-tar Enamels have demonstrated their ability to resist electro-chemical corrosion, because of their inherent insulation value.

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***FIELD SERVICE**—The Barrett Pipeline Service Department and staff of Field Service men are equipped to provide both technical and on-the-job assistance in the use of Barrett Enamel.*

Barrett
COAL-TAR ENAMEL

Sun Plans 20-Mile Line in Delhi Field, Louisiana

Sun Pipe Line Company has been authorized to construct a 20-mile, 6-inch crude line from the Delhi field, Richland Parish, Louisiana, to a barge loading terminal at Talla Bena on the west bank of the Mississippi River, according to Jno. G. Pew, assistant to the vice president.

The field pump station, which will be equipped with 2 centrifugal pumping units rated at 395 barrels per hour each, will be located in SE 23-17n-10e, Madison Parish. Two 55,000-barrel capacity tanks will be erected at the loading terminal. The oil will be consigned to refineries upstream.

The Delhi field is expected to have between 50 and 60 wells before the end of the year. The production is currently restricted to tank car shipments, and supplying fuel for drilling rigs.

Cap Rock Field Outlet Is Nearing Half-Way Mark

Valley Refining Company, owner of a refinery at Roswell, New Mexico, is nearing the half-way mark in the construction of a 31-mile, 4-inch crude outlet for the Cap Rock field, centering upon the Lea-Chaves County line, to Dexter station on its Square Lake-Roswell carrier.

Oil from the Cap Rock field will flow by gravity to the Dexter station. The Cap Rock field has 12 wells producing 38-gravity oil from the 3000-foot sand. Development has been curtailed due to operators paying 33 cents per barrel for trucking.

Schedule for Big Inch Deliveries Stepped Up

Schedules for operation of the Big Inch pipe line for June and subsequent months have been raised by PAW from 318,000 to 320,000 barrels daily, under which the line will deliver from 9,600,000 to 9,920,000 barrels monthly.

The line periodically has exceeded its scheduled run and has delivered as much as 327,000 barrels a day for short periods.

Mississippi-Baton Rouge Pipe Line Work Begins

Interstate Oil Pipe Line Company has started construction work on its 120-mile, 8, 10, and 12-inch crude oil pipe line from Mississippi to Baton Rouge, Louisiana. Right-of-way was cleared early in May and pipe deliveries were being made by the Republic Steel Company. First construction work was started at Liberty, Mississippi.

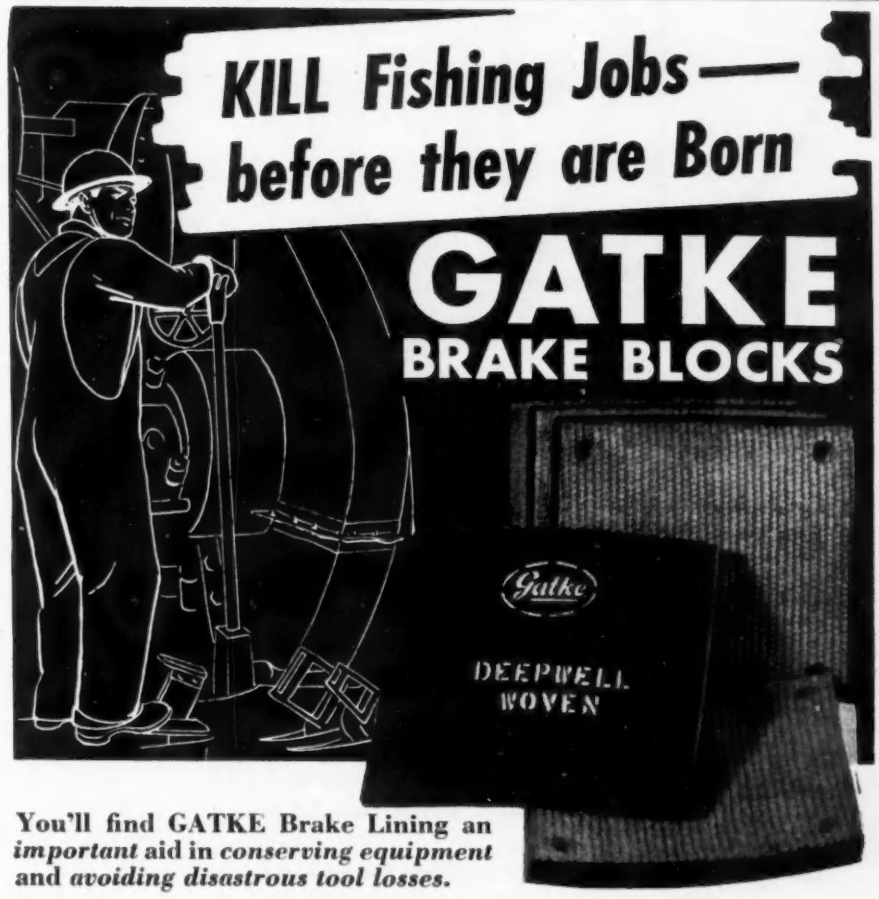
Steamboat Buttes Field Pipe Lines Considered

A pipe line outlet for the Steamboat Buttes field, Wyoming, is under consideration by Toronto Pipe Line Company. The proposed lines would be run from the Pilot Butte, Circle Ridge, Winkleman and Maverick pools to Steamboat Buttes, there to connect with an eight-inch line east to a point about 17 miles north of Riverton, Wyoming.

At that point a six-inch line is planned to the Husky Refining Company plant at Riverton. Following the war the system would be connected from north of Riverton to the Stanolind Pipe Line Company's main 12-inch trunk system.

Line to Gilbertown Field, Alabama, Is Completed

H. L. Hunt, Dallas producer, has completed a 5-mile, 6-inch crude line from the Lansgdale field, Clark County, Mississippi, to his producing leases in the Gilbertown field, Choctaw County, Alabama, where the oil from both areas is moved by tank cars to the Mexican Petroleum Corporation's refinery near Savannah, Georgia.



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☆ Oklahoma

Garvin County May Receive New Bromide Sand Pool

New Bromide sand pool looms for Garvin County; old Ramsey pool back in limelight as Mid-Continent Petroleum cores 44 feet of highly saturated second Wilcox sand; Sohio to test Bois d'Arc lime after finding Bartlesville dry in West Edmond outpost; good oil shows reported in 2 Anadarko Basin wildcat tests; wildcat may open shallow pool in eastern Oklahoma.

Garvin County: Another important pool appeared in the offing for this county which has been given a strong play this year as Cities Service Oil Company's Abernathy 1, SE SW SE 13-3n-2w, 8 miles west of the Pauls Valley field, flowed gas and oil on a drill-stem test from the Bromide zone at 5495-5502 feet. With the tool opened the well showed air immediately and oil in 15 minutes. Gas was estimated at 1½ million cubic feet a day and the oil, which was permitted to flow for about 10 minutes, tested 41 gravity. Location is on a seismograph structure. Viola lime was topped at 5152 feet, Bromide Dense at 5259 feet, and the Bromide sand at 5495 feet.

Oklahoma County: Stanolind Oil & Gas Company has apparently opened a new shallow sand pool 6 miles east of Jones and several miles east of the Jones field. Bednar 1, NW NW SW 23-13n-1e, flowed oil from the Cleveland sand on a drill-stem test. Sand was topped at 4637 feet, cored at 4640-50 feet and on a 1-hour test the well showed about ¼ million cubic feet of gas. At about 2300 feet, when pipe was being pulled out, the well started heading clean oil, 35 gravity, and was estimated at about 40 barrels hourly.

Payne County: One of the hottest plays in Oklahoma is Mid-Continent Petroleum Company's discovery of a thick saturated section of second Wilcox sand in the old Ramsey pool, prolific producer from the first Wilcox zone. Operator set pipe at 4823 feet at Columbia 3, NW NE SW 18-18n-2e. The well had been producing for some years and when production dropped operator drilled just 15 feet to encounter soft sand. The section was logged from 4752 to 4794 feet, highly saturated. The discovery means an important addition to the state's oil reserves and insures production from the Ramsey period for a much longer period.

Bethany Area: Prospects for a new Bartlesville sand pool in this area and south of West Edmond where geologists believed a new stratigraphic trap may have been discovered, were dimmed when Sohio Petroleum Company's Hayes 1, C NE SW 8-11s-4w, found the formation dry at 7528-40 feet.

Seminole County: W. J. (Slim) Marten et al are drilling below 1057 feet at Payne 1, NE NE NW 20-6n-7e, a geophysical prospect 3½ miles southeast of the Sasakna pool. The wildcat is on a 640-acre block and is strategically located between the Sasakna, North Sasakna and Wofford pools which have produced more than 11 million barrels from the Wilcox sand.

Major County: With operations in the Anadarko Basin claiming attention reports were current that 2 key wildcat tests on that major feature were showing. Hunt Oil Company's Kragh 1, NE SE SW 32-22n-14w, northeast of Barney, was reported to have encountered 2 good oil shows in the Pennsylvanian series between 5200-90 feet. Superior Oil Company of California's Manning 1, NE NE NW 27-22n-10w, near Ringwood, recovered oily mud from the Layton sand at 6740 feet after taking a drill-stem test. Both wells are being drilled "tight" geologically.

Geologic Literature

The New Mexico School of Mines, Socorro, New Mexico, has published Bulletin 22, "Geologic Literature of New Mexico Through 1944." In this bibliography are listed bulletins, articles, papers and reports on the geology of New Mexico that have appeared from the earliest publications through 1944.

☆ Kansas

Carter's Sumner County Discovery Well Flows

Carter discovery well in Sumner County flows; Arbuckle lime pool opened northwest of Boyd; Champlin shuts in gas discovery after it shows some oil and water; pipe set for test north of Lake City field.

Sumner County: The Carter Oil Company's Latimer 1, C SW NE 12-33s-2w, which has revived interest on the northern edge of the Nemaha Ridge, flowed 49 barrels of high-gravity oil in 3 hours and 3 barrels of salt water. Simpson sand was topped at 4268 feet and on drill-stem test recovered an estimated 350 barrels of oil daily. The wildcat is near Perth and 7 miles west of the Wellington pool.

Barton County: After acidizing the Arbuckle lime at 3356-70 feet, Yellow Cab Oil Company's Carroll 1, SW NE SE 21-17s-14w, established pumping potential of 150 barrels a day to open the new Carroll pool.

Champlin Refining Company's Chris-

Wells Completed in the United States in Week Ended June 2, 1945

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS This Week	Last Week	Cumulative This Year	Last Year
Alabama									1	1	1	1	10	10
Arizona														3
Arkansas	5				5						5	2	68	79
California	37				37				3	3	40	63	880	788
Colorado													11	8
Florida									2	2	2		8	
Georgia													3	1
Illinois	20		2	8	30	3	3		8	11	44	38	682	650
Indiana	5			3	8				1	1	9	5	120	119
Iowa													1	2
Kansas	22			1	23	1			8	8	32	44	634	686
Kentucky	4			1	5		3		1	4	9	2	167	262
Louisiana	22	1		8	31				2	2	33	20	395	285
North Louisiana	6	1		3	10				1	1	11	3	126	91
South Louisiana	16			5	21				1	1	22	17	269	194
Michigan	8			3	11		1		4	5	16	16	313	229
Mississippi	7				7						7	6	158	42
Missouri													15	9
Montana													73	117
Nebraska													2	7
New Mexico	3				3				2	2	5	5	194	168
New York	15		10		25						25	25	436	508
Ohio	5	1		1	7						7	5	283	338
Oklahoma	30	3	2	16	51		2		10	12	63	56	950	634
Pennsylvania	27	4	15	1	47	1					48	47	1,167	1,135
Tennessee													1	6
Texas	76	6		29	111	2	2	1	27	30	143	139	3,001	2,284
E.Tex.Bor. Co.'s													33	6
E. Texas Field														3
Rest of E. Texas	1			1	2	1			2	2	5	4	87	119
North Texas	17	1		12	30	1			9	9	40	29	670	528
W. Central Tex.	4	1			5				1	1	6	10	189	159
West Texas	27			6	33			1	4	5	38	35	794	631
Tex. Panhandle	2	1			3						3	8	247	87
G. Coast, Upper	5	1		3	9		2		6	8	17	16	300	208
G. Coast, Lower	14	2		3	19				1	1	20	25	432	339
Southwest Texas	5			4	9				1	1	10	10	211	168
S. Central Tex.	1				1				3	3	4	2	38	36
West Virginia	1	12			13	1					14	14	314	373
Wyoming													60	62
Total U. S.	287	27	29	71	414	8	11	1	69	81	503	488	9,946	8,805

* Includes distillate wells. † Includes salt water disposal wells.

tianson 1, NE SW NE 29-20s-14w, gas discovery east of the Pawnee Rock area, was shut in after testing 8 million cubic feet of gas daily with a slight show of oil and some water from Arbuckle lime between 3601-11 feet.

Barber County: Drillers Gas Company set pipe for a production test at Gant 1, SE NW SE 6-31s-13w, prospective pool opener 1¼ miles north of the Lake City field. Showings in the Viola lime between 4532-38 feet will be tested. Arbuckle was dry with 50 percent saturation reported in the Simpson sand between 4673-75 feet.

Ellis County: Gulf Oil Corporation's Gore 1, NE NE 30-13s-16w, west extension to the Bemis pool, has been assigned a potential of 1277 barrels of oil daily from the Arbuckle. Northwest of the Herzog pool Gulf's Mermis 1, NW NW 29-13s-16w, was making hole below 3248 feet.

Missouri

Northeast of Parkville, Platte County, Fell & Reid's Klam 1, C SE SE 19-51n-33w, topped St. Peter sandstone at 1630 feet, Arbuckle lime at 1714 feet, and was drilling below 1750 feet with a slight gas show reported.

Atchison County: Claude McQueen, who has drilled several tests in the northwestern Missouri area of the Forest City Basin, has spudded Meyers 1, SE NE SW 13-63n-41w, near Corning. At about 600 feet there was a twistoff and the small portable rotary was skidded over for another hole. The test was shut down because of heavy rains.

☆ New Mexico

New Pay Discovery Trying To Balance Gas-Oil Ratio

New pay discovery in Drinkard field trying to balance gas-oil ratio; large nitro shot given West Lovington field north extension; Silurian proves dry in southeast Hobbs deep project.

Lea County: The Texas Company's Blinebry 1, northeast offset to the Drinkard-Yeso field discovery, made additional perforations at 5610-25 feet and acidized to try to increase oil volume. This well was a failure in the eYso and after drilling to granite at 7435 feet, made a flow from a new horizon at 5580-95 feet.

Magnolia Petroleum Company's State 3-Q, north edge of the West Lovington field, was cleaning out after a 635-quart nitro shot at 4840-5095 feet, with the hole bottomed at 5180 feet. Multiple acid treatments previously proved unsuccessful.

Stanolind Oil & Gas Company's Jones 1, 3 miles southeast of the Hobbs field and an Ellenburger project, entered the Silurian at 9130 feet, and no shows were recorded in drilling below 9770 feet.

Map Completed

E. C. Jacobson, Tulsa, Oklahoma map maker, has completed a natural gas pipe line map of the United States which also shows the cities being supplied and an index of the operating companies. Map size is 48 x 75 inches and the scale is 40 miles to the inch.

☆ West Texas

Substantial Producing Area Seen for Cochran County

San Andres strike in Cochran County probably forerunner of substantial producing area; Levelland pool expanded to northwest; development of the TXL field attaining sizeable proportions.

Cochran County: Stanolind Oil & Gas Company's Edwards 1, PSL 13, Block 1, and 10½ miles west of nearest production, swabbed 88 barrels of oil and 12 barrels of wash-water on last 4-hour test from San Andres at 5025-5096 feet, having plugged off water reached in drilling to 5111 feet. The fluid level remains constant at 2500 feet from surface. Steady oil flow is anticipated after acid treatments. Oil showings in outlying failures gave this prospect a high rating. Short-term leases will force prompt development in the general area.

Howard County: Continental Oil Company et al's Settles 1-D-133, small flowing discovery from Pennsylvanian perforations at 9100-20 feet, will set plug and make production test through perforations opposite oil saturation in top of the Crinoidal at 8924-35 feet. The latter zone yielded 800 feet of oil in addition to oil-cut mud on drill-stem test before the prospect was carried to barren Ellenburger at 10,122 feet.

Hockley County: The Texas Company's Butler 1, ¾ mile northwest of its Levelland pool discovery in the San Andres, swabbed 85 barrels of fluid, ranging from 60 to 38 percent bottom sediment and acid residue after using 3000 gallons at 4784-4840 feet. A small pumper is assured. The company's Coble 1-A, 2¼ miles west of its discovery, is awaiting pumping gauge after using 14,000 gallons of acid at 4770-4860 feet. A large productive area is evident from the 3 wells, but anticipated crude yield per acre will be subnormal.

Gaines County: Amerada Petroleum Corporation's Jones 1-A, 4¼ miles southwest of the Yoakum County sector of the Wasson field and prospective oil discovery at 9090-9224 feet, was drilling cherty-lime at 9310 feet.

Crockett County: Continental Oil Company et al's Todd 14, east offset to the first Ellenburger producer for the Todd field and the third well for this zone, was rated at 1852 barrels potential through ½-inch choke after using 1000 gallons of acid at 6186-6255 feet.

Ledge Petroleum Company's Bouscaren 1-29, Clear Fork discovery for the gas-cap sector of the Noelke field, recovered bailer and resumed cleaning out gravel-tamp after a 240-quart nitro shot at 3961-4042 feet, with the well bottomed at 4051 feet. This deep strike is rated at 300 barrels of 33.9-gravity oil daily.

Andrews County: Mid-Continent Petroleum Corporation's University 2, Lease 8, C NW SE Sect. 18, Block 13, 1¼ miles north by west of the Fullerton-Devonian 6-well pool, entered the Devonian at 8560 feet, being 160 feet low to nearest well, and proved barren in drilling to 8867 feet. However, it will be completed in the 7000-foot Clear Fork.

Magnolia Petroleum Company's Martin 1, 2 miles south of a Devonian discovery, was testing after using 2000 gallons of acid at 4218-4668 feet. having plugged back from Ellenburger at 10,118 feet. Nominal production is anticipated from San Andres, topped at 4590 feet.

DeKalb Agricultural Association's Lockhart-Brown 1-C, projected 8000-foot test and 1¾ miles northeast of the Martin pool's Clear Fork discovery, cemented protection string of 9⅝-inch casing at 3230 feet, having entered Yates frosted grains at 2960 feet, or 248 feet low.

Irion County: Shell Oil Company's Tankersley 2, probable flowing oil discovery from Pennsylvanian at 7180-7220 feet, was drilling dry dolomite at 7895 feet in Ellenburger, topped at 7299 feet, or 8 feet high to nearby 8357-foot Cambrian failure.

The company's first test barely fell short of making a producer from several zones, and more exploratory work will occur on the 12,989-acre lease regardless of the outcome of Tankersley 2.

Winkler County: Sun Oil Company's Keystone 2, 2 miles north by west of Ellenburger production on the Keystone structure and a failure in this zone, pumped 138 barrels of fluid, averaging 75 percent 32.3-gravity oil, on a 22-hour test from Silurian perforations at 8460-8560 feet. It will be the first Silurian completion for the area, although several Ellenburger wells indicated flowing production from the Silurian. This crude is classed as sour, having .8 percent sulphur content, with 129 pounds of salt per barrel, while 410 end point gasoline cut has natural octane rating of 45.6.

Ector County: Cities Service Oil Company and Shell Oil Company's T. P. Land Trust 1-C, 1⅛ miles southwest of their Devonian discovery in the TXL field entered the Devonian at 8075 feet with elevation of 3348 feet, and was drilling dry lime at 8095 feet. This outpost is 206 feet low on the Devonian. Phillips Petroleum Company's T. P. Land Trust 1-A 2¼ miles southeast of the TXL field's Ellenburger discovery, was preparing to perforate with the hole bottomed in water at 9853 feet, or 243 feet in the Ellenburger. A prolific flow occurred when drill-stem test was made at several intervals. This field is due to surpass the Keystone-Ellenburger area in volume of drilling activity, owing to compulsory offsets and the fact that it is being expanded at faster rate.

To Recondition Line

J. R. Horrigan Construction Company has been awarded a contract by Humble Pipe Line Company to recondition 40 miles of 8-inch oil line from Benavides to Kelsey Bass in Southwest Texas.

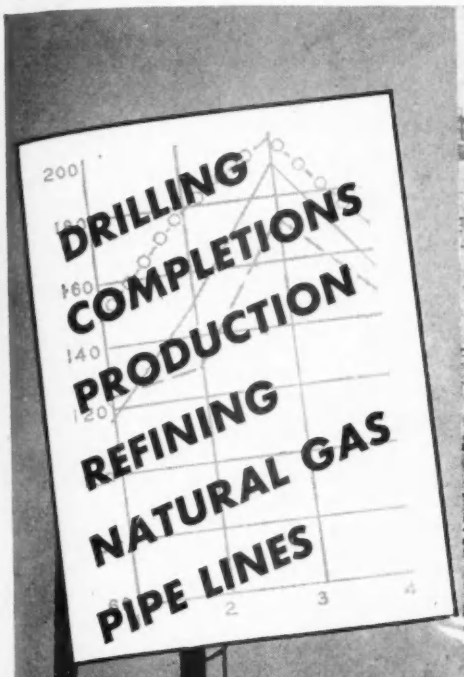
☆ North Texas

Cooke Wildcat Registers Low Structural Position

Eastern Cooke County wildcat registers low structural position in drilling to dry Ellenburger; Antelope field south extension sector becoming most active drilling center in the district.

Cooke County: The Texas Company's Bulkeley 1, 2⅛ miles east of the Walnut Bend field, was considered a failure in drilling at 7742 feet in Ellenburger, topped at 7620 feet, to establish the water

Power Sets the Pace of Production



(Right, above) International Model TD-14 Diesel TracTracTor with bullgrader, favorite in the oil fields.

(Below) International Model U-2 Power Unit with combination gas-gasoline attachment is one of a family of money-savers on the pumps.

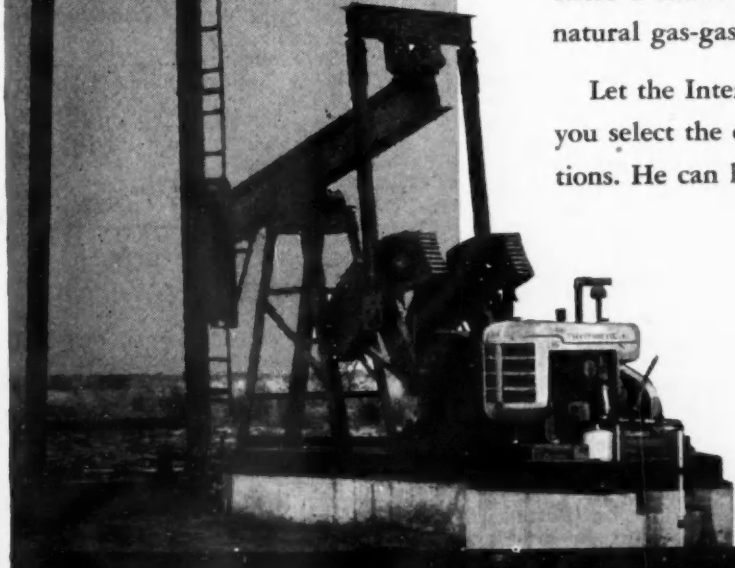


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table. Nominal oil stain in dolomite at 7655-7700 feet failed to yield oil or gas on drill-stem test.

The Texas Company's Murrell 1, third Ordovician producer for the Northwest Walnut Bend area, pumped 69 barrels oil and 44 barrels water initial after using 3000 gallons of acid in open hole at 5408-94 feet in Ellenburger, topped at 5406 feet. Prolific oil flow was passed up in the Snuggs (Strawn) sand at 4764-80 feet, which has accounted for 3 wells.

Sun Oil Company's Fields 1, M. J. Eason Survey and 1¼ miles south of the Sivells Bend 2-pay area, was drilling at 5947 feet, having passed up numerous sands. with several carrying nominal porosity and oil stain, as confirmation of its high structural position.

King County: Mid-Continent Petroleum Corporation's Burnett 1, G. W. Lampson Survey and 4 miles southwest of the Ross Ranch 2-well pool, was drilling chert at 6140 feet, with its Ellenburger objective due near this level. This wildcat indicated commercial production from a thin section of Strawn at 5473-78 feet.

Clay County: Magnolia Petroleum Company's Oliver 1, NE SE Sect. 2627, TE&L Co. Survey, is showing for a producer from Strawn sand at 3192-3201 feet, giving the south extension sector of the Antelope field its ninth consecutive producer. Interest in this area was revived in February when Lewis Breeden et al extended production 2240 feet south, and there are now 6 additional operations. Shell Oil Company's Bunting 1, ¼ mile east of the field, missed the upper pay, and was awaiting orders at 3800 feet.

New Drilling Company

Circle Drilling Company, drilling contractors, recently incorporated in Lake Charles, Louisiana, with headquarters at 201 Noble Building.

Officers include Mordelo L. Vincent, Jr., Lake Charles, Louisiana, president; L. Lee Welch, Eunice, Louisiana, vice president; Drew Cornell, Lafayette, Louisiana, secretary; and J. Greer Wilcox, Lake Charles, vice president and treasurer.

☆ East Texas

Fairfield Area Test Has Porosity in Travis Peak

Second test in Fairfield gas-distillate area has 29 feet of effective porosity in 2 Travis Peak zones; offset to Van Zandt County discovery pumper is failure.

Freestone County: The Texas Company's Sneed 1, 4200 feet south by west of its Fairfield discovery gas-distillate well at 8232-97 feet, cemented 7-inch casing at 8287 feet, being 5 feet off bottom, after logging pay at 8157-76 and 8214-24 feet in Travis Peak, topped at 7920 feet.

Deep Prospects: Humble Oil & Refining Company's Maness 1, eastern Cherokee County, was drilling at 6380 feet in Georgetown, topped at 4793 feet. Shell Oil Company and Lone Star Producing Company's Tandy 1, Buffalo gas area, Leon County, was drilling lime at 9860 feet on Travis Peak objective in the Chapel Hill field. Sinclair Prairie Oil Company's Shofner 1 was drilling sandy-shale at 9720 feet.

Van Zandt County: Humble Oil & Refining Company's Ayers 1, J. Saligna Survey and ¼ mile southeast of its Myrtle Springs oil discovery at 8524-44 feet, entered dry Travis Peak at 8514 feet, and was abandoned at 8827 feet.

Wood County: Magnolia Petroleum Company's Harp 1-A, northwest offset to the most westerly producer in the Winnsboro field, was running swab every 3 hours for recovery of 5 barrels of oil and 1 barrel of fresh water from Gloyd perforations at 8200-22 feet. It was drilled to Travis Peak at 8462-8648 feet, and a small amount of water appeared with oil from original perforations at 8200-25 feet.

Smith County: Phillips Petroleum Company's Carver 1, east offset to its South Tyler pool oil discovery at 9918-29 feet, was drilling at 7355 feet, while its Hairston-Johnson 1, north offset to the producer, was drilling at 9025 feet. The company's Englander 1, 3½ miles south by west of the strike and a failure in the Rodessa series, was drilling at 12,010 feet in Travis Peak, topped at 10,365 feet, and will explore the Smackover.

Panola County: Glassell and Glassell have completed Carthage United 6, B. R. Wallace survey. Initial production from the Upper Pettit was gauged at 18 million cubic feet of gas per day on open flow. From the Lower Pettit, 36 million cubic feet of gas was recorded on open flow.

A southeast extension of Trinity series gas and distillate production appeared likely as W. Holloway Mitchell's Border Unit 1, A. G. Hudson survey, made an estimated 3 million cubic feet of gas with a good spray of distillate on open flow at 5940-56 feet. Operator was plugging back for a test of Upper Pettit.

☆ South Central Texas

Atascosa County Producer Is Completed by Humble

Wildcat staked in Dimmit County; Humble completes Imogene producer; Frio County wildcat fails on drill-stem test.

Dimmit County: A 3000-foot wildcat has been spotted 4½ miles southwest of Carrizo Springs by Calatexia Oil Company. It is the S. E. McKnight 1 in the northeast corner of Sect. 35.

The operator's Eardley 1, wildcat test 5 miles northwest of Carrizo Springs, has been adanboned at 1744 feet.

Atascosa County: Humble Oil & Refining Company has completed another oiler in the Imogene field. The company's Coward & Avant 1 flowed 49 barrels of oil through a 3/16-inch choke from open hole at 7605-09 feet. Gas-oil ratio was 2513-1.

F. A. Callery's Ruth D. Davis 1, wildcat test 4 miles southwest of Poteet, was drilling below 3020 feet in sand and shale.

Frio County: Humble Oil & Refining Company's H. R. C. Roos, wildcat 7 miles southwest of Charlotte, was conditioning mud after a drill-stem test at 7976-8018 feet recovered salt water.

☆ Southwest Texas

Boyle Outpost Is Failure; Duval Wildcat Is Located

Boyle field outpost test is failure; North Rincon field activity increases; 5500-foot wildcat spotted in Duval County.

Starr County: Efforts to again extend the Boyle field northward failed when R. D. Farish's Sugarland Industries, Inc. 2 was abandoned at 4109 feet. The failure is 1164 feet north of the operator's Sugarland Industries, Inc. 1 which opened a new sand at 4031-43 feet.

A new 6000-foot test has been staked in the North Rincon field by Arkansas Fuel Oil Company. It is the F. F. Martinez 12 in Survey 79.

Also in the North Rincon field, Lockhart & Company's J. F. B. Heard 9 has been completed for 192 barrels of 45.5-gravity oil daily through an 11/64-inch choke from 4370-78 feet.

Duval County: Taylor Refining Company has staked location for a 5500-foot wildcat test 6½ miles southeast of Benavides. It is the Antonio G. de Ramona in the Las Anacuas Grant.

Southeast of Freer, J. W. Gorman's J. Alanis 1, Survey 20, has been abandoned at 4510 feet.

Jim Wells County: Edwin M. Jones Estate has located J. E. Bennett 6, Roberts & White Survey, in the North Magnolia City field.

Tulsa Geologists Elect

Dr. A. N. Murray, professor of geology at the University of Tulsa, was elected president of the Tulsa Geological Society, succeeding J. V. Howell.

Other officers chosen include Paul E. Fitzgerald, Dowell Incorporated, first vice president; Oscar Hatch, chief geologist, Helmerich & Payne, Inc., second vice president; Glenn R. V. Griffith, United States Geological Survey, secretary-treasurer; Charles J. Deegan, associate editor, Oil & Gas Journal, editor.

The following were elected members of the council: A. L. Ackers, Stanolind Oil & Gas Company; Castle J. C. Harvey, The Atlantic Refining Company; T. E. Weirich, Phillips Petroleum Company, Bartlesville, and Howell.

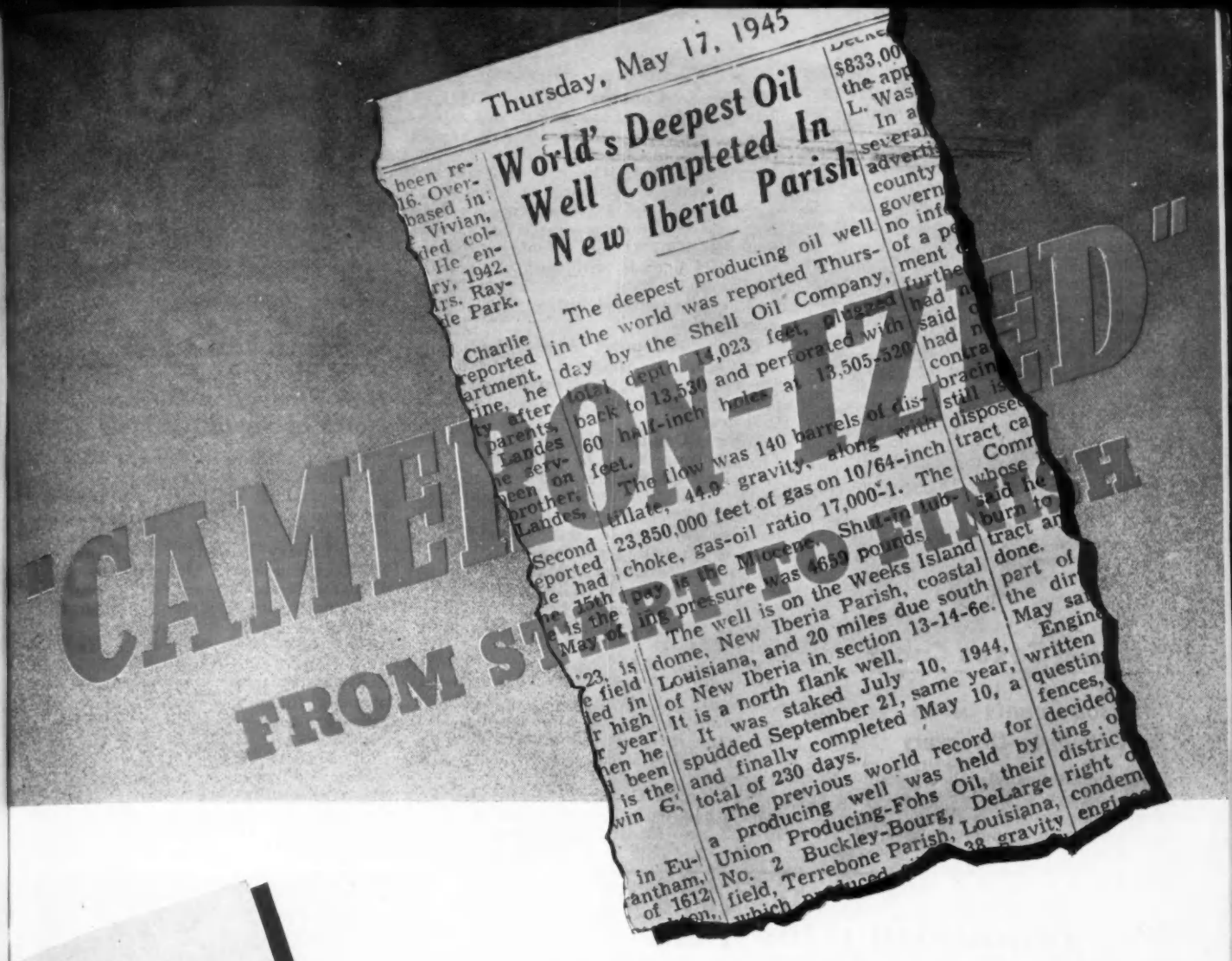
☆ Lower Texas Coast

Production Tests Started On Willacy County Wildcat

Willacy County wildcat prepares to test; final completion made on Wilcox sand discovery south of Slick pool; Brooks County wildcat testing.

Willacy County: Magnolia Petroleum Company and J. S. Abercrombie Company's N. H. Dohe 1, wildcat in the La Sal Vieja area, 3 miles southwest of Raymondville, landed 5-inch liner on bottom at 10,560 feet and operators were starting production tests. Seven-inch casing was set at 10,019 feet. Location has been staked for the operator's Harvey Geis 1 about a mile north of Dohe 1.

Goliad County: Transwestern Oil Company's William Altman Estate 1,


Thursday, May 17, 1945
World's Deepest Oil Well Completed In New Iberia Parish
The deepest producing oil well in the world was reported Thursday by the Shell Oil Company,
total depth 14,023 feet, plugged back to 13,530 and perforated with 60 half-inch holes at 13,505-520
The flow was 140 barrels of distillate, 44.0 gravity, along with 23,850,000 feet of gas on 10/64-inch choke, gas-oil ratio 17,000-1. The
The well is on the Weeks Island dome, New Iberia Parish, coastal Louisiana, and 20 miles due south of New Iberia in section 13-14-6e.
It is a north flank well.
It was staked July 10, 1944, spudded September 21, same year, and finally completed May 10, a total of 230 days.
The previous world record for a producing well was held by Union Producing-Fohs Oil, their No. 2 Buckley-Bourg, DeLarge field, Terrebone Parish, Louisiana,
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Smith-State Unit No. 1, the world's deepest oil well, was drilled from barges in the Weeks Island field of Coastal Louisiana.

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Another unusual achievement by the operators on this outstanding well was the setting of the longest string of 7" casing on record, 13,550,' utilizing a Cameron Type "WM" Casing Head equipped with Cameron's standard casing slips to suspend the extremely heavy casing load.

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Wilcox sand discovery well 2 miles south of the Slick field, flowed 218 barrels of oil on a 24-hour potential gauge from perforations at 7640-50 feet. Tubing pressure was 925 pounds and casing pressure 1300 pounds.

In the Slick field, Continental Oil Company's G. W. Allen 7 made 232 barrels of 35.8-gravity oil daily from 7555-61 feet.

Magnolia's W. W. Boyce 1, outpost in the Cabeza Creek field, was retesting after recovering gas, distillate and water on a drill-stem test through perforations at 7657-62 feet.

Brooks County: The Texas Company's Mary M. Lasater 3,, wildcat in the Loma Blanco area, was testing through perforations at 6656-60 feet. A test at 6656-63 feet recovered 100 barrels of fluid, 50 percent distillate and 50 percent salt water, through an 18/64-inch choke. The gas was estimated at 17 million cubic feet, open flow.

Bee County: Continental's F. A. Dahl 1, northwest of Pettus, was retesting after squeezing perforations at 6989-95 feet. Total depth is 7012 feet with 5½-inch liner set at 6995 feet.

☆ Upper Texas Coast

Jefferson County Given Gas-Distillate Discovery

Sun Oil Company makes gas and distillate discovery in Jefferson County; Chesterville outpost is testing; Helis to deepen Liberty County well; deep San Jacinto County wildcat test abandoned.

Jefferson County: Sun Oil Company has opened a new gas and distillate producing area in the Gilbert Ranch area, 7 miles south of China. The operator's Gilbert Estate 1 has been completed and shut-in without a potential gauge. Drilled to 8996 feet with 5½-inch casing set on bottom, operator perforated at 8706-08 feet and 8701-03 feet. Tubing pressure was 3075 pounds with shut-in pressure 3155 pounds. Flow was through a 12/64-inch choke with distillate being 61.8-gravity.

Colorado County: Stanolind Oil and Gas Company's Wiese 1, outpost in the Chesterville field, was reported testing after drilling deeper from 9530 feet to 9558 feet.

Liberty County: William Helis of New Orleans is preparing to deepen his Willis et al 1, in the Cottonwood field, to 8500 feet. This well originally was completed in March, 1944, in perforations at 7747-57 feet for 42 barrels of 25.6-gravity oil daily through a ¼-inch choke.

San Jacinto County: Magnolia Petroleum Company and Atlatl Royalty Company have abandoned Hinchcliff-Sims 1, wildcat test 7 miles north of Cleveland, at 11,078 feet.

Walker County: Magnolia's Thompson Brothers-Texas Long Leaf Lumber Company A-1, Woodbine sand wildcat test south of Kittrell, was reported still deepening from old total depth of 9961 feet. Two drill-stem tests produced salt water.

Washington County: M. H. Marr of Dallas has staked a 6100-foot wildcat 10 miles northwest of Brenham. It is the Arnold Lammert 1 in the A. Kuykendall Survey.

Wharton County: General Crude Oil Company's Security Bank & Trust Company 5, Lane City field, has been completed for 124 barrels of 24.8-gravity oil daily through a ⅛-inch choke from 5343-65 feet.

Matagorda County: Humble Oil & Refining Company is preparing to drill a 7500-foot wildcat test in the Lake Austin area. It is the J. J. LeTulle 1, about 9 miles southeast of Wadsworth.

☆ South Louisiana

New Production Opened North of Shuteston Field

New production opened north of Shuteston field; deep wildcat test staked in Acadia Parish; Mystic field well continues to test; deep tests active in Jefferson Parish.

St. Landry Parish: Final completion has been made on Claude F. Morgan of Houston Frank Dimmick 1, located 1¼ miles north of the Shuteston field. After drilling to 10,414 feet, operator perforated casing at 10,368-374 feet and the well flowed 75 barrels of condensate daily along with 3 million cubic feet of gas through a ⅛-inch choke. Gas-oil ratio was 40,000-1. Sand was logged at 10,290-380 feet.

St. Mary Parish: Humble Oil & Refining Company has completed a large producer in the Bayou Sale field. The company's Miami Corporation 8-E flowed 397 barrels of 36.1-gravity oil daily

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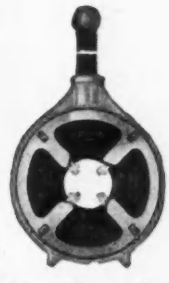

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through a 5/32-inch choke from perforations at 10,131-143 feet. A previous test at 10,628-655 feet showed salt water and gas.

Acadia Parish: A 10,200-foot wildcat test has been staked southeast from Eunice in the north central section of the parish. It is the Vincent & Welch, Nicklos Drilling Company's August Leonard 1 in 29-7s-1e.

Beauregard Parish: Sohio Oil Company's Lutcher-Moore 4-B, Mystic field, was testing for completion in the 8500-foot sand. On initial drill-stem test through perforations at 8491-96 feet the well flowed at the rate of 285 barrels of 45.6-gravity oil through a ¼-inch choke. Tubing pressure was 750 pounds. Additional perforations were being made at 8498-8508 feet. Five and one half-inch casing is set on bottom at 8538 feet.

Jefferson Parish: The Texas Company has 2 deep wildcat tests active in this parish. The State-Barataria Bay 1, in East Barataria Bay, was drilling below 12,300 feet in hard shale and lime. The State-Little Lake, wildcat at Little Lake, was below 12,045 feet in sandy shale.

St. Martin Parish: Yegua Corporation's Guchereau 1, wildcat test in 71-9s-5e, was conditioning mud at 11,491 feet. The company's Olivier & Burdin 1, wildcat in 48-7s-6e, was drilling in shale below 10,880 feet.

Jeff Davis Parish: Gulf Refining Company's Lacassine Company, Inc. 1-A, Hayes area, was still reported conditioning mud at 10,770 feet.

Evangeline Parish: Continental Oil Company's Pardee Lumber Company 6, Reddell field, was reported flowing 145 barrels of oil daily through a 13/64-inch choke. Total depth is 9898 feet.

☆ North Louisiana

Union County Gets Gasser Jackson Given New Field

Thirteen completions listed; 6 permits issued; number of wells testing.

Union Parish: In the Monroe gas field, Carbon Consolidated Company's Bird 2 was completed for 2,832,000 cubic feet of gas per day, pressure 700 pounds. Estimated flow before acidization was 750,000 cubic feet. Bottom of the well is at 2195 feet.

Lt Salle Parish: Peterson Petroleum Corporation staked J. C. Lisenby Unit 1, south and west of the northeast corner of 19-10-3e, Olla field.

Richland Parish: Murphy-Sun Oil Company completed J. E. Holt 4, Delhi field, with a flow of 227 barrels of oil daily through a 3/16-inch choke from perforations between 3257-66 feet. Gas-oil ratio is 462-1. Gravity of the oil is 41.3. Depth of the well is 3330 feet. The company's Nathan Williams Unit 1 flowed 166 barrels of 38.8-gravity oil on a 3/16-inch choke. Production is from 3380-3394 feet. Gas-oil ratio is 367-1. The hole is bottomed at 3536 feet.

In the same field, Gulf Refining Company's M. S. Baughman 1 flowed 207 barrels of 41.3-gravity oil per day through a 5/32-inch choke while the hole was bottomed at 3425 feet. Perforations were between 3314-3333 feet. This company is to drill Ed Hopper 2, south and west of the northeast corner of 28-17-9e.

Claiborne Parish: McFarlane and Hollyfield deepened an old well, H. W. Patton estate 2 in 2-20-5w, from 5220 to 5418 feet, only to find it dry. Perforations were made between 5388-92 feet with only a small show of gas. The company pulled tubing, plugged the top and temporarily abandoned the hole. In the same parish, Union Producing Company reworked Johnston Unit A-1, which was reported completed in March, and gas sand was perforated from 5090-97 feet. The well is now closed in waiting on orders. Big West Drilling Company finaled the Alford 1 from 2 producing zones, the Alford and Bodcaw sands. No gauge was taken.

Arkansas Fuel Oil Company completed L. L. Beene 10 from 8805-8902 feet with 464 shots, flowing 252.61 barrels of 44.5-gravity oil in 12 hours on 16/64-inch choke. Casing pressure was 1025 pounds and tubing pressure 800 pounds. Gas-oil ratio is 535-1. Total depth is 8942 feet.

Union Producing sought permits to dually complete the King Unit 8-12-4 and Nolen Unit 1, 9-21-4w.

Jackson Parish: Shell Oil Company completed Tremont Lumber Company 1 and was waiting on more equipment before gauging. This well opens a new field. The company staked an outpost at Tremont Lumber 2 a week ago.

Red River Parish: Lewis and Baumann's Blunt et al B-2 was completed with an estimated flow of 150 barrels of oil per day, while The Texas Company abandoned Semp Russ 2, having taken it below 2700 feet.

Sabine Parish: Mrs. S. B. Evan's Burkett 1, 16-9-13, was being completed. The well was taken to 2000 feet.

☆ Arkansas

Fouke Field Gets 2 Wells; Single Wildcat Is Staked

Nine completions; six new field locations and one wildcat made the news for Arkansas.

Columbia County: R. H. Crow Trustee is drilling J. W. Smart 3-E, C SE SW SE 12-15-20, and has reached 150 feet. The company was preparing to move in on the J. W. Smart 4-E in the same section. W. H. Swearingen is drilling below 1100 feet in J. F. Smart 1, C NE SE NE 13-15-20. G. H. Vaughn plans to deepen an old well, J. F. Smart 2-D. All are in the Stephens field.

H. B. Ownby's J. W. Smart 2-B pumped 60 barrels of salt water in 24 hours. Total depth is 3606 feet. Vaughn's North Central Texas 3 pumped 70 barrels of oil daily on initial production test. In the Calhoun field, Tide Water Associated Oil Company completed Pearce B-2, flowing 70 barrels of oil and 5 barrels of salt water daily through a 3/32-inch choke. Gas-oil ratio was 1160-1. Total depth is 8334 feet.

Lafayette County: Barnsdall Oil Company completed the Moore-McClendon in the McKamie field with a flow of 27.04 barrels of oil on 2-hour test through a 14/64-inch choke. Gas-oil ratio is 6240-1. The well is bottomed at 9295 feet.

Miller County: The Carter Oil Company completed the R. J. O'Brien 2, Fouke field, flowing 133 barrels of oil in

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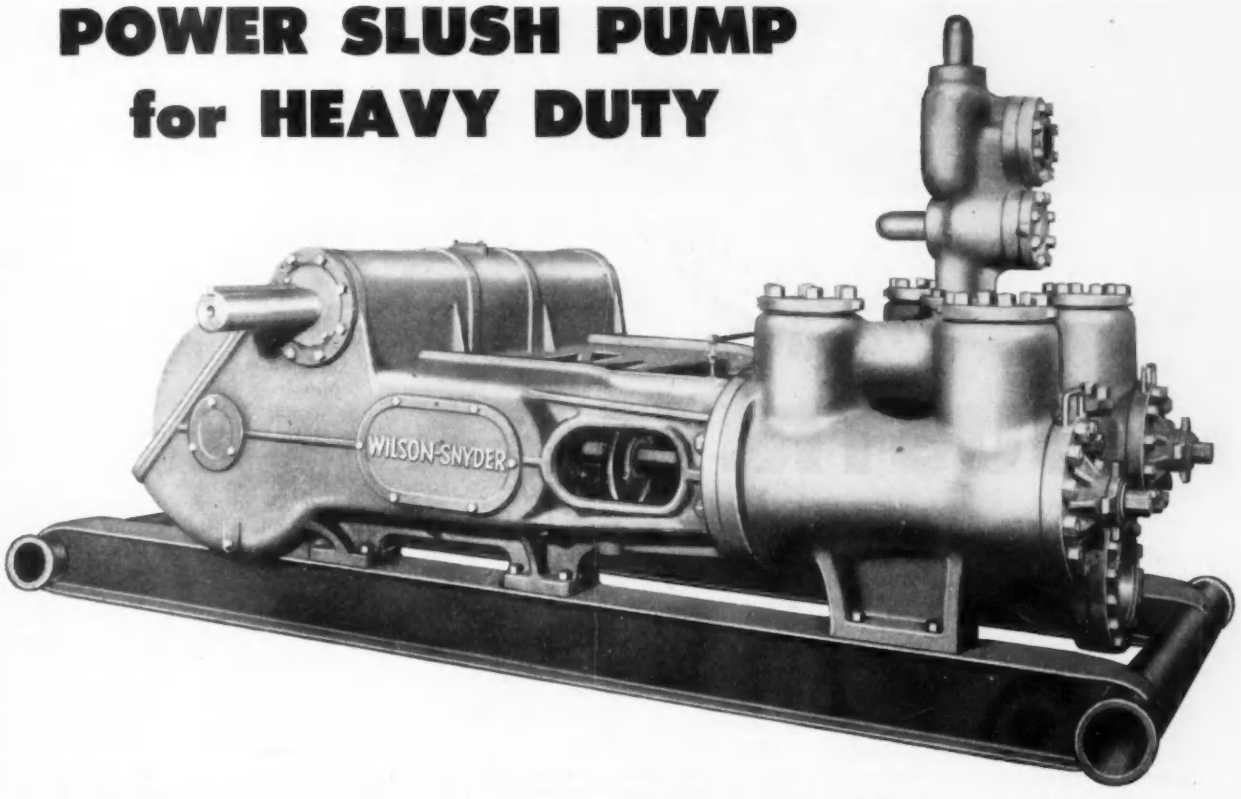

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24 hours on a 11/64-inch choke. Total depth is 3679 feet.

Skelly Oil Company also completed a well for the Fouke field, the Durham 1. It flowed 32 barrels of oil in 4 hours on an 11/64-inch choke.

Ouachita County: Sohio Petroleum Company is to drill the S. R. Block 1, a wildcat, the only one staked this week, located in C NW NE SW 20-14-16w.

Union County: Phillips-Kerlyn was preparing to move in on newly staked Frost Lumber Company 2, C SW SW NW 10-17-13, in the Wilmington field.

Hickey and Wallingsford finaled the M. S. Sumners 6 in the Hillsboro field, pumping 24 barrels of oil daily from a hole bottomed at 2250 feet. D. V. Lacefield pumped 25 barrels of oil and 16 barrels of salt water in 24 hours at the Sumners 2-A in the same field. Total depth is 2246 feet.

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☆ Mississippi

Humble May Open Second Field in State This Year

New oil field discovery in prospect with reports of successful test in Jefferson County; 13 Tinsley wells to be deepened; new producer noted for Gwinville field; activity mounts in new Hub field.

Jefferson County: Humble Oil & Refining Company's M. R. Smith 1, 12-9n-1e, has cored sand in the Massive Tuscaloosa section which virtually assures eventual opening of a new field for the state. Although most drilling information has been withheld, it is reliably reported that it has cored a solid 64-foot body of sand in the Massive from 9663-9737 feet, carrying no evidence of salt water, and showing gas and condensate. Little or no heavy oil was noted, but core analysis shows that it should make a condensate well. In addition there was an 18-foot body of sand above the Massive which carried gas only. The company will probably set a string of 9⅝-inch protection casing through the section and continue drilling for a prospecting of the Lower Cretaceous formations.

Successful completion of this well would mark the second successive field opened in the state by Humble this year, following closely upon the discovery of the Hub field in Marion County. It is now rumored that the company has plans for immediate development on its northwest Richton block in Perry County, and that location to be drilled may be in or around 14-5n-11w.

Jefferson Davis County: Gulf Refining Company's V. G. Gholar 1, SWc SE 27-9n-19w, north offset to the discovery well in Gwinville field, was on the verge of completion with an initial flow of 405 barrels of 40.5-gravity oil in 20 hours through ¼-inch tubing choke. Production is from 64 perforations at 8570-78 feet opposite the Tuscaloosa horizon. Gas-oil ratio is 3290-1 and tubing pressure 2400 pounds.

Yazoo County: New activity is being noted in the dwindling Tinsley field as permits have been issued to deepen 13 wells. Union Producing Company, which is drilling below 10,433 feet in its Jennie Stevens 21, 12-10n-3w, has secured 10 permits; Sohio Petroleum Company has received 1; and Jones-O'Brien, Inc., has another. Last indications of any shows in the Stevens well were in a drill-stem test at 7473-83 feet which recovered 30 feet of mud cut with oil.

Clarke County: A. B. Irion, et al's Long Bell Lumber Company 3, C NW NW 14-2n-16e, swabbed heavy oil and salt water from perforations at 2755-73 feet and 3844-62 feet opposite the Eutaw horizon. Perforations at 3755-73 feet have been squeezed out and the well was preparing to drill out and test. The Carter Oil Company's Long Bell Petroleum Company 1, C SW NE 14-4n-16e, recovered porous sand and salt water in cores at 3349-59 feet in the Tuscaloosa zone. The well was drilling at 3650 feet.

Lamar County: Sun Oil Company's F. M. Snowden 1, NWc NW NE 7-1n-16w, in the Baxterville field has been dually completed. In a 6-hour test through ¼-inch tubing choke, it flowed

129 barrels of 14.5-gravity oil from perforations between 8670-8736 feet opposite the Massive sand. The well flowed 10 million cubic feet of gas and 87:5 barrels of condensate from perforations opposite the Tuscaloosa horizon in 24 hours.

Adams County: The California Company's M. T. Hickingbotham 2, 66-7n-1w in the Cranfield field, flowed 27 barrels of oil and 43 barrels of salt water in 20 hours from a drill-stem test at 10,408-429 feet in the Massive sand. The well continued to test.

Marion County: California's W. E. Walker 1, 10-2n-18w, first venture in the new Hub field since the completion of the discovery well, is drilling below 4962 feet with no shows.

Jasper County: Sinclair-Wyoming Oil Company's Pearl Bethea 1, 12-1n-12e in the East Heidelberg field, has been completed with an initial production of 118 barrels of 21.4-gravity oil. Production is from perforations opposite the Eutaw horizon at 4972-82 feet. In the West Heidelberg field 2 wells were successfully completed. Gulf's Mrs. W. E. McIntosh, 6-10n-10w, flowed 92 barrels of 21.4-gravity oil in 24 hours and its Morgan Myers Unit 1, 6-10n-10w, pumped 98 barrels of 23.6-gravity oil with production from perforations opposite the Eutaw.

Covington County: Cities Service Oil Company's Rubing Altman 1, 22-7n-16w, is coring below 8154 feet with no shows. Tuscaloosa sand was topped at 8146 feet.

Tate County: C. Porter Johnson's B. F. Pritchard Estate 1, NEc NW 28-4s-7w, in northwest Mississippi, was waiting on cement after setting 5½-inch casing at 2887 feet. It was reported without confirmation that the well had slight shows of oil in the Eutaw horizon at 2800-40 feet.

Alabama

The California Company was rigging up rotary tools for Scotch Lumber Company 1, C NE SW 25-10n-1w, 7 miles north and 16 miles west of Grove Hill, Clark County. The area is considered a good prospect.

Two failures were reported for the week. In Marengo County, A. W. Hutchings Trust's Condie Wadlington Estate 1, C SW NE 18-12n-1e, was abandoned at 4230 feet in the Lower Cretaceous with no shows reported. In Bullock County, Capital Oil & Gas Company abandoned Mrs. Ethel Gholston 1, SEc 18-14n-22e, at 1725 feet after topping granite wash at 1700 feet.

Choctaw County: Gilbertown field's newest test, H. L. Hunt's Robert Land 4, 31-11n-4w, was waiting on cement at 107 feet, after setting 10¾-inch pipe to 101 feet.

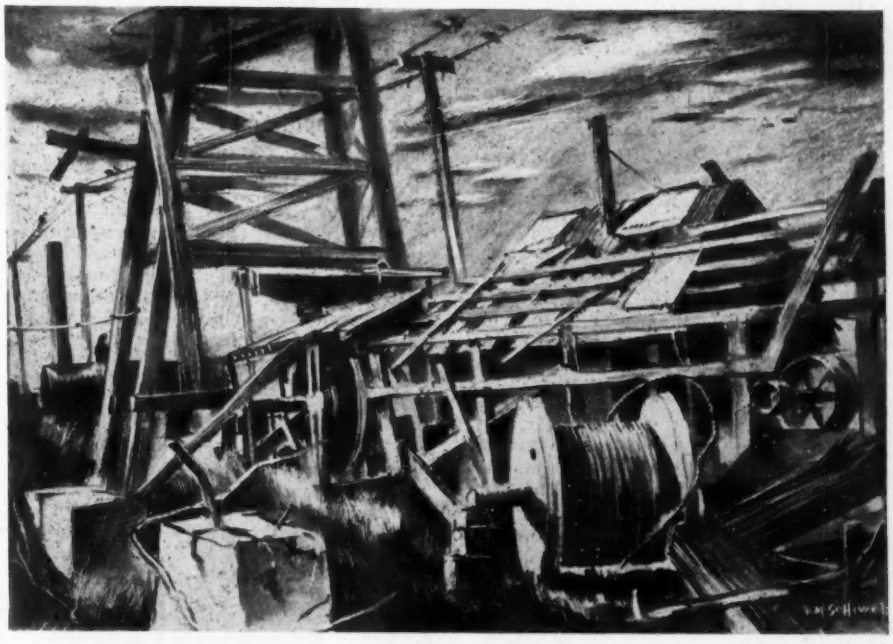
Washington County: Wayne Refining Company's Willie Mitchell 1, NW NE 12-8n-3w, recovered tools at 4432 feet and has resumed drilling.

Florida

Salt water encroachment has somewhat weakened the prospects of Humble Oil & Refining Company's Gulf Coast Realties 4, 20-48s-30e, Sunniland field. This second producer gave earlier indications of surpassing the first, but latest test recorded a flow of 17.62 barrels of fluid, 5 percent of which was salt water, with a flowing pressure of only 25 pounds. Depth of well is 11,597 feet. Further testing will be continued.

Charlotte County: Humble's Lowes-Treadwell 1-A, C SW NE 17-42s-23e, is

PIONEERS ★ ★ ★ *from a lithograph*



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waiting on cement at 817 feet after running 20-inch casing.

Highlands County: Humble's G. C. Carleton Estate 1, C SW NE 34-38s-29e, is drilling below 8896 feet in lime and anhydrite.

Gulf County: The Pure Oil Company's St. Joe Paper Company 1, SWc 10-7s-9w, is drilling below 3010 feet.

Monroe County: O. D. Robinson's State 1, NEc NW¼ 29-59s-40e, is drilling below 4244 feet.

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A Houston subscriber has a complete set of THE OIL WEEKLY from 1928 to early 1940 which he wishes to sell. Anyone interested in acquiring these editions may address Editor, THE OIL WEEKLY, Box 2608, Houston 1, and the inquiries will be passed on to the owner of the set in hopes that this will prove of mutual service.

Texas Resources

Texas Looks Ahead is a new book on Texas resources, written by staff members of the University of Texas. Copies may be obtained from University Publications, The University of Texas, Austin. Cost is $1 per copy. This is the first of two volumes dealing with developments in Texas in postwar period. The purpose is to make a comprehensive analysis of Texas resources.

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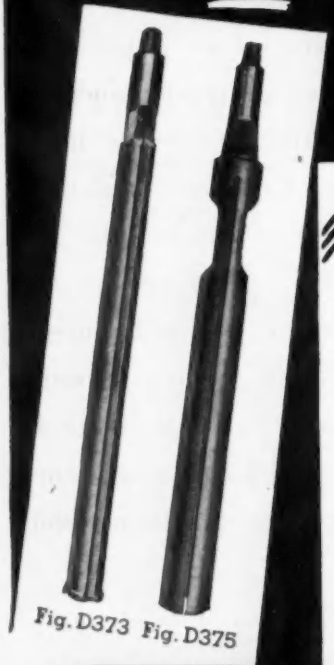

Fig. D373 Fig. D375

SPANG STAR REAMER
(Fig. D373)

SPANG HOLLOW REAMER
(Fig. D375)

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☆ California

Race Track Hill Given Good Producing Well

Good well completed at Race Track Hill in Kern County; 2 wells completed in Paloma field, with a third testing; tanks erected at Newhall wildcat.

Kern County: Another excellent producing well was brought in at Race Track Hill. British-American Oil Producing Company's Portals 21-3, in 3-30-29, was completed, flowing 450 barrels per day of 40.8 gravity oil. Production is from perforations between 4700-4720 feet. The new well is an offset to Kern Oil Company's 34-28 and is about ½ mile northwest of British-American's discovery well of the area, which was definitely marginal in character.

In the Paloma field, The Superior Oil Company's deep test, Houchin 74-34 in 34-21-16, bottomed at 12,364 feet, was plugged back and completed in the Paloma zone for an estimated 250 barrels per day. Superior's Anderson 38-35 in 35-31-26 was completed, flowing at about the same rate. Western Gulf Oil Company's L.A.A.C. 67-6 in 6-32-27, bottomed at 12,792 feet, was swabbing for production from the lower portion of the hole.

Los Nietos Producing and Refining Company's attempt to develop production on the South Dome of Kettleman Hills will be watched with considerable interest. The first wildcat to prospect this area in 10 years, it is making good progress, with 13⅜-inch casing cemented at 2058 feet.

Los Angeles County: Signal Oil and Gas Company has made preparations to bring in Signal-Needham 1 in the Newhall area by erecting two 1000-barrel tanks. A no-dope hole, the well is believed to be bottomed at 2885 feet, with 8⅝-inch casing reportedly run to 2450 feet.

Seaboard Oil Company has set surface pipe and was drilling in its L. A. Brick 1 wildcat in the Elysian Park district near down-town Los Angeles. The well, soundproofed and powered by electricity, is 2 miles south of the company's Park 1, which, about a year ago, drilled into slate at 1300 feet.

Shell Oil continues to drill without comment in its 2 deep tests of the Long Beach field. Alamitos 48-A is drilling below 12,500 and Stakemiller-Rose 1 has hit 11,000 feet.

Solano County: Shell Oil Company's Lambie 3 in the new Kirby Hills gas field, which produced at the rate of 4,500,000 cubic feet before being shut in, may have established the presence of a third gas zone in this field. The area is complicated by faulting but the new well seems to be a little higher stratigraphically than Lambie 2. Only 3 wells have been drilled in the field.

☆ Michigan

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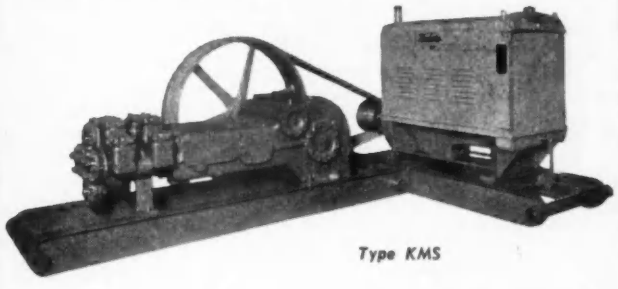

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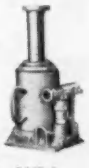

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gauged 200,000 cubic feet of gas and carried a good show of green oil in the Traverse lime at 3156 feet but when deepened to 3224 feet without an increase in oil, operator decided to drill to original Dundee objective, due to log around 3700 feet. The wildcat is between the Deerfield and Broomfield shallow (1500 feet) Stray sand gas fields.

Sohio Oil Company's DeLong 1, N½ NE NW 29-16n-6w, on the northwest side of the Coldwater field, Isabella County, flowed 191 barrels of oil on an 8-hour test in the Dundee at 3760 feet to become the 32nd well in the pool.

Mecosta County: Smith Petroleum Company's Ortwein 1, SE NW NE 7-14n-7w, discovery well in the Wheatland pool, swabbed 38 barrels of oil from Dundee after a 50-gallon acid treatment which followed a rework job to eliminate bottom water.

☆ Illinois Basin

Marion County Discovery Given Production Test

Marion County, Illinois, discovery pumps 115 barrels on 23-hour production test; Boyd pool receives good well; good well completed in Mattoon pool.

Marion County: Paul Doran's Young 1, SE NE SE 12-2n-1e, discovery well 2 miles southwest of the Salem pool, pumped 115 barrels of oil in 23 hours during initial production test of Cypress sand at 1746-61 feet. Before a shot, the well swabbed 85 barrels of oil per day. A pipe line has been laid from the well to Central Pipe Line Company's line.

Jefferson County: The Superior Oil Company has completed 1 of the best wells in the Boyd pool. The well, Sanders 1, S½ NW NW 19-1s-2e, pumped 700 barrels in 24 hours from pay in the Benoist sand at 2059-74 feet and Aux Vases sand at 2136-58 feet.

Wayne County: In the new area opened by Perry-Fulk's Powless 1, SE C 5-1s-6e, The Carter Oil Company recovered 600 feet of oil during a 1 hour drill-stem test of upper McClosky lime at Lane 1 in 4-1s-6e. The company planned to test the lower lime before setting pipe for production test.

Coles County: C. A. Beckman's Harris-Rudy 3, NW NE NE 26-12n-7e, which extended the Mattoon pool westward, swabbed and flowed 300 barrels per day with no water after a light shot, to make the best well in the area. Placed on pump after several days swabbing and flowing, the well produced 177 barrels of oil in 24 hours from Aux Vases sand at 1950-60 feet.

Del Carroll has made location on Carter farmout acreage for Rudy-West 3, northwest of the Harris-Rudy 3, which was the westernmost well in the pool. Production has grown constantly better with well drilled to the west, indicating the trend of the pool.

Keating Drilling Company's Gray 1, SW NE SW 36-12n-7e, 1½ miles south of the Mattoon pool in wildcat territory, was abandoned at 2110 feet. Only show was in Cypress sand.

Kentucky

Ashland Oil and Refining Company's Verona Coal Company 1, 7-O-21, which has opened the Waverly pool, Union County, initialed 130 barrels of oil and 8 barrels of water on pump in Cypress sand at 2280-85 feet.

Success of the well has started a flurry of operations in the area. Ashland is drilling below 2050 feet at Verona Coal Company 1-B, east offset to the discovery, and Fisher Oil Company has started a northeast offset at Greenwell 1. A west offset location has been made by W. F. Lacey at Thomas 1.

☆ Canada

Two More Successes for Conrad Area Registered

Two more successes in Conrad area; 4 companies join to drill seismographed Devonian Dome on Alberta Plains; Imperial starts new South Plains wildcat.

Conrad: Two more wells have been completed successfully in the Conrad area, on the Southern Alberta Plains—including the area's best producer to date—running the score to 3 strikes, no misses, for a 7-day period.

Standard Oil Company of California's Conrad-Province 37-5A, southeast quarter of lsd 15 5-6-15w4, topped Ellis sand at 3117 feet and halted coring at 3123 feet, 6 feet in sand. It obtained a 1640-foot rise of 27-gravity oil in a 1-hour drill-stem test. This is the best rise to date in the field and is indicative of probable potential on pump of 250-300 barrels daily. Seven-inch casing has been set at 3112 feet, and the well will go on pump shortly. The well is ¼ mile south of Mid-Continent-East Crest 1 discovery, and ⅜ mile northeast of the Conrad-Province 55-5A, which found sand too tight for commercial production.

Mid-Continent Oil & Gas and East Crest Oil's 5, northwest quarter of lsd 2 8-6-15w4, topped Ellis sand at 3159 feet and showed a 400-foot oil rise in 1-hour drill-stem test 3 feet in sand. It cored on to 3156 feet and set 7-inch casing to 3156.5 feet without a further test. The test indicated a potential on pump of 50 to 60 barrels daily, but may be bettered by oil from untested bottom 3 feet of sand. The well is ⅛ mile north and the same distance west of Mid-Continent-East Crest No. 1 discovery.

Conrad pool, discovered last July, now has 80 wells producing or preparing for production, with potential estimated at 900 to 1000 barrels daily. Three successes in a week extended the producing area to a width of 1 mile and length of 2 miles. Five rigs are working in an effort to extend the pool.

Princess: Located on the crest of an indicated Devonian Dolomite Dome revealed by seismograph work over the past 3 months, Empire-Pacific 1 wildcat has been staked in the northwest 10 acres of lsd 1 27-19-12w4, about 6 miles south of the Devonian Dome found productive by California-Standard last September. The important new test, which will have a strong bearing on determining value of seismograph work on the Alberta Plains, will be backed jointly by 4 companies—Empire Petroleums Ltd., Pacific Petroleums Ltd., Princess Petroleums Ltd., and the California-Standard Company.

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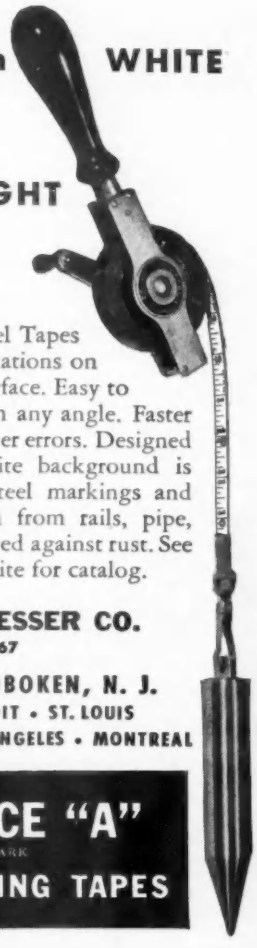

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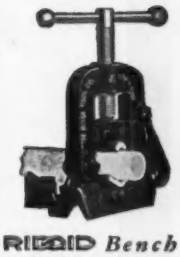

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Several Test Wells by Major Operators Are Expected Soon in Pacific Northwest

Interest in oil exploration and leasing in the Pacific Northwest has increased rapidly in recent weeks and several test wells by major operators are in prospect. A Los Angeles oil man is authority for the statement that there are over 50 geologists and lease men headquartered in Portland.

California oil companies whose activity in the area has been made public include Standard Oil Company of California, Richfield Oil Corporation, and the West Coast organization of The Texas Company.

Washington interest centers in the wildcat being drilled near Aberdeen by Sharples Corporation of Philadelphia. The report that oil has been recovered from a sand core adds to the oil prospects of the stratigraphic section of Miocene or Oligocene age involved in this well. Operator has twice set gravel-packed liner to make a production test, but gas pressure caused collapse of the liner in both instances.

Standard of California has obtained community leases on 6 sections of land in the western part of Whatcom County, Washington, near Bellingham, and has agreed to start a test well within a year. An office has been opened in Ferndale in charge of H. H. Kuester, assistant manager of the land and leases department.

To the south, in Columbia County, Oregon, The Texas Company has selected site for a test well 5 miles southeast of Clatskanie in 36-7n-4w. Texas has about 50,000 acres of public-owned land under lease in the county. Geological and geophysical prospecting has been carried on for many months and recently a spokesman for the company said it would bring in rotary equipment to drill to "at least 7500 feet."

The Texas Company is also understood to have opened negotiations with the Multnomah County commissioners for the leasing of county-owned land near the Linnton district.

Richfield Seeks Leases

Richfield Oil Corporation, West Coast Sinclair subsidiary, which recently applied for oil exploration leases on about 3000 acres of county-owned land near Linnton, has also applied to the Portland city council for leases on 1600 acres of city-owned land in the same area. The company has agreed to begin a test well within 2 years from date of lease. Under Richfield's proposed county lease, which would extend 5½ years, the company would pay the county $1 an acre a year and agree to start drilling within 90 days.

The projected test wells in both Columbia and Multnamoh counties are being drilled largely with the prospect of discovering gas reserves, but oil also may be anticipated.

California Company Daily Average Is 20,000 Barrels

The California Company, subsidiary of Standard Oil Company of California formed in 1941 chiefly for exploration and development work outside California, now has a daily average production of 20,000 barrels of oil, Standard reported in its spring bulletin.

The company, which has a staff of 1100 workers, and headquarters in New Orleans, operates actively in 17 states, although its territory covers 40 states. It owns or leases about 2 million acres of land. It has a four-year record of six new Louisiana and three Mississippi fields discovered as well as increased production in northwestern Colorado and in Wyoming.

Award to Sun Seaman

Seaman Val Stanley Zdun, of Chester, Pennsylvania, has been given the J. Howard Pew award, by Sun Oil Company. The award, established by the Sun company last year, honors employes who distinguish themselves by heroic action beyond the call of duty incidental to employment.

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ALABAMA WILDCAT

Bullock County—Failure: Capital O&G Co.'s Mrs. Ethel Gholston 1, sec 18-14n-22e, abnd 1725 ft.

CALIFORNIA WILDCATS

San Luis Obispo County—Failure: Halvern L. Norris' Cuyama Rancho 1, 25-11n-28w, Cuyama Ranch area, abnd 1780 ft.

Santa Barbara County—Failure: So. Calif. Pet. Corp.-J. I. Anderson's Archambeault 3, 16-7n-32w, Los Alamos area, abnd 1816 ft.

Ventura County — Failure: Tide Water's Triunfo 1, 12-1n-18w, Owensmouth area, abnd 3240 ft gray calcareous sandstone.

FLORIDA WILDCATS

Bay County — Failure: Magnolia's State Block 4-B-1, c sw sw 21-3s-15w, abnd 7003 ft.

Madison County—Failure: Hunt Oil Co.'s J. W. Gibson 4, sec ne ne 5-2s-11e, abnd 4069 ft.

ILLINOIS WILDCATS

Clay County—Oil Discovery: Paul Doran et al's Breissenden 1, se se sw 16-3n-7e, Tar Springs 2318-30 ft, flow 31 bbls, td 2330 ft.

Clinton County—Failure: Carlston & Franseen's Swagler 1, sw sw nw 10-3n-1w, abnd 1470 ft.

Effingham County—Failure: J. D. Dunbar et al's Goeckner 1, se nw se 19-7n-7e, abnd 2797 ft.

Hamilton County—Oil Discovery: R. Blake Dirickson's Presley 1, se se sw 5-6s-6e, Aux Vases 3105-17 ft, td 3117 ft.

Jasper County—Oil Discovery: Robinson & Puckett's Roberts 1, ne ne se 26-7n-10e, McCl 2599-2608 ft, flow 180 bbls, td 2660 ft.

Jefferson County—Oil Discovery: Texas Co.'s Eubank 1, (OWDD) sw sw sw 35-2s-1e, Dev 3729-39 ft, pump 65 bbls, otd 2305 ft, td 3746 ft.

Jefferson County—Failures: C. E. Brehm's Young 1, sw se nw 8-2s-2e, abnd 2387 ft.

Nash Redwine's Johnson 1, ne ne sw 22-3s-3e, abnd 2987 ft.

Marion County—Failure: Ray E. Johnston's Lynch 1, nw sw¼ 26-2n-1e, abnd 2147 ft.

Richland County — Failure: Olds Oil Co.'s Warner 1, se se sw 1-3n-11w, abnd 1853 ft.

Wayne County—Failures: Texas Co.'s Doelling 1, ne se se 30-1s-3w, abnd 1416 ft.

W. O. Schock's Bowyer 1, ne se ne 33-1s-5e, abnd 3188 ft.

INDIANA WILDCAT

Spencer County—Failure: Rhodes & Hollingsworth's Douthit 1, ne nw ne 30-7s-7w, abnd 1755 ft.

KANSAS WILDCATS

Barton County — Failure: Champlin Ref. Co.'s Tuggle 1, ne sw nw 28-20s-14w, Arb 3602 ft, abnd 3626 ft.

Comanche County — Failure: United Carbon's Bosseau 1, c se nw 27-31s-18w, Arb 5966 ft, abnd 6000 ft.

Gray County—Failure: Texas Co.'s Seal 1, nwc 9-24s-27w, Arb 5402 ft, Vi 5265 ft, abnd 5550 ft.

Kingman County—Failure: B&R Drlg. Co.'s Theis 1, ne ne 13-29s-10w, Lans 3668 ft, Miss 4232 ft, Arb 4700 ft, abnd 4733 ft.

Lane County—Failure: Skelly's Fagenquist 1, nec sw 22-18s-30w, Lans 3924 ft, Miss 4543 ft, Kind 4900 ft, Arb 4983 ft, abnd 5015 ft.

Ness County — Failure: Transwestern Oil Co.'s Cornelson 1, sw sw nw 29-18s-21w, Lans 3610 ft, Miss 4205 ft, Vi 4392 ft, Arb 4565 ft, abnd 4670 ft.

Stafford County—Failure: W. P. Faulkner's Faushier 1, nwc 25-21s-13w, Lans 3297 ft, Arb 3696 ft, no Vi or Simp, abnd 3742 ft.

Sumner County—Failure: Barnsdall's Hare 1, nec 13-31s-3w, KC 3205 ft, Miss 3866 ft, Simp 4285 ft, Arb 4395 ft, abnd 4450 ft.

KENTUCKY WILDCATS

Grayson County—Failure: Texas Co.'s Edwards 1, 12-M-36, abnd 2138 ft.

Henderson County—Oil Discoveries: Fleming & Swann's Patterson 1, 1-O-22, Cyp 2265-72 ft, flow 125 bbls, td 2272 ft.

John L. Sallee et al's Liles 1, 21-O-22, Cyp 2289-2301 ft, flow 375 bbls, td 2301 ft.

Webster County — Oil Discovery: Sinclair Prairie's Cavenaugh 1, 12-N-23, McCl 2600-11 ft, pump 55 bbls, td 2772 ft.

NORTH LOUISIANA WILDCAT

Franklin Parish—Failure: E. C. Laster's J. H. Baker 1, 4-16-9e, abnd 4530 ft.

SOUTH LOUISIANA WILDCAT

Calcasieu Parish—Failure: M. P. O'Meara's E. Yust et al 1, 330 s&w of nec 28-10s-12w, abnd 8471 ft.

MICHIGAN WILDCATS

Allegan County—Failure: Frink et al's Studley 1, se ne ne 5-2n-16w, abnd 1280 ft.

Kent County—Rockford Oil Discovery: S. L. McCall's Hutchins 1, ne ne sw 25-9n-11w, Algoma tnshp, elev 738 ft, Traverse li 2200 ft, pay 2204 ft, flow 49 bbls, td in wtr 2213 ft, pb 2210 ft.

Lake County—Failure: J. P. O'Neill's Hurley 1, w½ nw nw 11-19n-13w, Dundee 2886 ft, abnd 3056 ft.

Sanilac County—Failure: Shell's Perry 1, ne ne ne 9-9n-15e, abnd 2370 ft.

Tuscola County — Failure: E. E. Brehm's Cain 1, sw sw se 34-11n-8e, abnd 2140 ft.

NEW MEXICO WILDCATS

Lea County—Failures: Mac T. Anderson-C. B. Buck's State 1, ne nw nw 21-21s-33e, elev 3767 ft, jkd 1430 ft.

Drilling & Exploration Co.'s Gorman-Federal 1, c se ne 25-20s-34e, elev 3706 ft, anhy 1765 ft, salt 1910-3495 ft, abnd 3825 ft.

OKLAHOMA WILDCATS

Blaine County—Failure: Superior's Norris 1, ne ne ne 17-19n-10w, abnd 11,005 ft in Arb.

Cleveland County — Failures: Magnolia's Lexington 1-A, ne ne sw 20-6n-1w, Hunt 6815 ft, abnd 7050 ft.

Phillips et al's Burnett 1, se se nw 19-6n-1e, abnd 6960 ft.

Creek County—Failures: A. D. Spears et al's Sowards 1, nw se sw 19-15n-7e, 2nd Wx 4192 ft, abnd 4206 ft.

C. E. Beal's Vickers 1, nw se nw 9-16n-10e, Bart 2410 ft, Lime 2540 ft, Miss 2900 ft, abnd 2978 ft.

Grady County — Distillate Discovery: Magnolia's Cunningham 1, se ne 33-5n-6w, basal Penn perf 10,879-82 ft, flow 95 mln gas, 250 bbls dist, td 10,891 ft.

Kiowa County—Failure: Amerada's Weide 1, c sw ne ne 31-7n-16w, Pont 500 ft, Hunt 795 ft, abnd 1025 ft.

Logan County—Failure: Texas Co.'s Hoge 1, se se nw 8-16n-3w, 1st Wx 6305 ft, 2nd Wx 6397 ft, abnd 6434 ft.

Marshall County — Failure: Texas Co.'s Bounds 1, ne ne se 23-6s-5e, abnd 9370 ft.

Okfuskee County — Failures: Westgate-Greenland Oil Co.'s Fitch 1, se ne nw 34-10n-10e, Gil 2850 ft, Crom 3290 ft, 2nd Crom 3308 ft, abnd 3370 ft.

Texas Co.'s Palmer 1, sw sw ne 33-11n-10e, Crom 3302 ft, Pitkin 3470 ft, abnd 3541 ft.

Okfuskee County — Oil Discovery: J. E. Crosbie's Sykora 1, ne ne sw 20-12n-7e, Crom shot 3860-80 ft, pump 119 bbls, td 4751 ft.

Pittsburg County—Failure: Public Service Co.'s Bell 1, ne nw 17-7n-14e, abnd 2127 ft.

Seminole County—Failures: W. A. Delaney's Damron 1, se se nw 7-5n-6e, Lime 1838 ft, Wdfd 2610 ft, abnd 2610 ft.

Sam Jewell's Huddleston 1, ne ne se 31-6n-6e, Calv sd 1836 ft, H. Coal 1995 ft, Senora 2015 ft, abnd 2886 ft.

Mealy-Wolf Drlg. Co.'s Cone 1, ne sw 11-7n-5e, Earls 3350 ft, abnd 3400 ft.

Stephens County—Failure: Ashland Oil Ref. Co.'s Harley 1, sw nw sw 3-2s-7w, Pont 2330 ft, Simp 4460 ft, Arb 5500 ft, abnd 5540 ft.

WEST TEXAS WILDCATS

Crane County — Gas Discovery: Gulf's U. Henderson 1-E, 660 snl 1980 wel PSL 25, blk B-27, 2⅞ mi nw of s sect of Sand Hills fld, elev 2485 ft, Ellenburger 6584 ft, 2,790,000 ft gas, H2S content of 328 grains per 100 ft, 63 bbls sw, natural, via csg fr Clear Fork (Tubb) 4350-4450 ft, td 6625 ft, pb 4450 ft.

Gaines County—Failure: Honolulu Oil Corp.'s Cunningham 1, c nw se W.T. Ry. 89, blk G, elev 3244 ft, anhy 2250 ft, Yates 3350 ft, brown li 4470 ft, Grayburg 4750 ft, abnd 5478 ft.

Martin County—Failure: Magnolia's Wolcott Ranch 1, 1650 out nwc Lge 252, Ward CSL, elev 2892 ft, anhy 1900 ft, Yates 2760 ft, brown li 3970 ft, San Andres 4270 ft, abnd 5321 ft.

Pecos County—Failure: Humble's Word 2, 660 out sec of Mrs. E. J. Carleton sur 601, elev 2724 ft, anhy 810 ft, Yates 1630 ft, Ellenburger 7650 ft, abnd 8228 ft.

Ward County — Failure: Gulf's John Edwards 1-E, 660 wel 2043 nsl PSL 1, blk B-19, elev 2662 ft, anhy 687 ft, Yates frosted grains 2180 ft, San Andres 3690 ft, Ellenburger 10,532 ft, abnd 10,862 ft.

WEST CENTRAL TEXAS WILDCAT

McCulloch County—Failure: Geo. W. McClung et al's Crawford 1, 330 out sec e½ sect 1374, H. Spiller sur, abnd 1560 ft.

SOUTH CENTRAL TEXAS WILDCATS

Atascosa County—Failure: H. H. Howell's F. J. Jaksik 1, 467 fr nl 660 fr el 98-ac lse, M. J. Perez sur 664, hard li 5890 ft, sso Edwards 5946-6221 ft, abnd 6221 ft.

Guadalupe County—Failure: R. V. Muckelroy's Tom H. Baker 1, 330 fr nwl 990 fr nel 122-ac lse, Samuel Highsmith sur, elev 510 ft, abnd 2593 ft.

Kerr County — Failure: Humble's W. R. Schreiner 1, 660 nw 3000 fr nel TCRR sur 1677.

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TECTONIC MAP of the UNITED STATES 1944

Prepared under the Direction of the Committee on Tectonics, Division of Geology and Geography, National Research Council.
Chester R. Longwell, Chairman, Philip B. King, Vice-Chairman.
Charles H. Behre, Walter H. Bucher, Eugene Callaghan, D. F. Hewett, G. Marshall Kay, Eleanora B. Knopf, A. I. Levorsen, T. S. Lovering, George R. Mansfield, Watson H. Monroe, J. T. Pardee, Ralph D. Reed, George W. Stose, W. T. Thom, Jr., A. C. Waters, Eldred D. Wilson, A. O. Woodford.

A NEW GEOLOGIC MAP OF THE UNITED STATES AND ADJACENT PARTS OF CANADA AND MEXICO
Geologic structure, as evidenced and interpreted by a combination of outcropping areas, bedrock, surface disturbance, and subsurface deformation, is indicated by colors, symbols, contours, and descriptive explanation. Igneous, metamorphic, and selected areas of sedimentary rock are mapped. Salt domes, crypto-Volcanic disturbances, and submarine contours are shown. The base map shows state boundaries, rivers, a pattern of cities, and 1-degree lines of latitude and longitude.
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660 fr sl BS&F sur 11, 65,000-ac lse, abnd as oil well 3768 ft, to comp as water well.

SOUTHWEST TEXAS WILDCAT

McMullen County—Failure: Dee Davenport's Annie Graves Dolph 2, 330 fr n&el of se¼ sect 23, C. C. Shumay subdvn of Shiner Rch, abnd 1943 ft.

LOWER TEXAS COAST WILDCAT

Jim Wells County—Failure: Delange, Rowe & Monday Oil Co.'s Mabel W. Luby et al 1, 1400 fr el 600 fr nl 851.12-ac lse, Los Presenos de Abajo Gr, abnd 5865 ft.

UPPER TEXAS COAST WILDCATS

Brazoria County—Failures: P. H. Pewitt's R. C. Storris 1-A, 330 fr wl 990 fr sl 125-ac tr, J. E. Groce 5 Lge Gr, Stratton Ridge area, abnd in cavity 1173 ft.

Stanolind's Adolph D. Suderman 1, 660 fr se&swl of 267.22-ac lse, HT&B sur 9, Chocolate Bayou area, abnd 12,505 ft.

Colorado County — Inglehart Oil Discovery: Shell's Kyle Est. 1, 642 fr nwl 660 fr swl 76.91-ac lse, 1200 fr sel 1500 fr nel of J. Grant sur, elev 175 ft, perf 60 shots 8780-95 ft, flow 62 bbls 50.3-gr oil, 3,500,000 gas, 8 bbls salt wtr, ¼-in, gor 51,000/1, tp 2000 lbs cp 150 lbs, td 11,944 ft.

Ft. Bend County—Failure: Stanolind's Selma Jaeggli 1, start e cor 100-ac lse go 1154 sw alg sel 330 nw at ra to lcn in sect 19 sw of prod at Big Creek, abnd 7000 ft in shale.

Matagorda County—Failure: Texas Co.'s C. G. Hamill 4, (OWDD) 7900 n of sl 11,082-ac lse and Wm. Baxter sur 6435 w of wly/el of sur, 4100 s se of No. 2 dry hole, temp abnd otd 7288 ft, dd and abnd 7336 ft.

Walker County—Failure: Moran Oil Co.-Gar-Flo Oil Co. et al's Gabe Smither Est. 1, 4900 fr sly/nwl 7650 fr swl Wm. Robinson sur, 611.2-ac irregularly shaped lse, abnd 7254 ft.

Wharton County—Failure: Sun's Duncan et al 1, 467 fr nw&swl sect 2 and J. Lindstrom sur on 320-ac lse, abnd 10,003 ft.

Brazoria County — Blue Lake Extension: Glenn McCarthy's Willella W. Smith 31, 330 fr n&el 64.34-ac lse, nwly fr Wilson E-1, John Bradley sur, perf 17 shots 8551-60 ft, flow 651 bbls 36.1-gr, ¼-in, gor 966/1, tp 1270 lbs, cp 1560 lbs, td 10220 ft.

EAST TEXAS WILDCATS

Houston County—Failure: James Papadakis et al's Houston Co. Coal Co. 1 240 fr nwl 860 fr nel of 21.7-ac tr, E. W. Goolsby sur, elev 319 ft, abnd 3400 ft.

Kaufman County — Failure: Ryan Consolidated Pet. Corp.'s Brown 1, 660 out nwc Matilda Reynolds sur, elev 426 ft, Woodbine 2510 ft, abnd 3065 ft.

NORTH TEXAS WILDCATS

Archer County — Failure: Kadane - Griffith Oil Co.'s J. J. Perkins 1, 1100 wel 1800 snl blk 134, J. W. Harris subdvn, elev 975 ft, Gunsight 1398 ft, abnd 1403 ft.

Clay County—Failure: E. R. Perkins-A. P. Kouri-Geo. W. Graham's Stine 1, 660 out sec sect 62, Bacon subdvn, granite 2920 ft, abnd 2993 ft.

Cooke County — Failures: Nu-Enamel Oil Operating Co.'s Wilson 1, 330 ft out nec of 107-ac tr, B. J. Thompson sur, A-1006, Ellenburger 2132 ft, abnd 2290 ft.

Texas Co.'s Hutson 1-C, 330 ft out swc of S.P. Ry. sur A-970, elev 961 ft, abnd in granite 4200 ft.

Wichita County—Failure: Fain-McGaha et al's Hennig 1, 660 snl 330 ewl of John Thomas sur A-283, elev 1032 ft, Bend 5030 ft, abnd 5257 ft.

Wilbarger County—Failure: Miller Marine Decking's Bond 1, 467 out nwc H&TC Ry. 32, blk 16, elev 1272 ft, Palo Pinto 5110 ft, abnd 5219 ft.

Throckmorton County—Failures: Bridwell Oil Co.'s McKeichen 2, 850 nsl 800 wel of E. E. Hull sur A-216, abnd 742 ft.

Bridwell Oil Co.'s M. Richards 3, 1067 snl 390 ewl lot 16, A. J. Morgan sur, abnd 1918 ft.

Young County—Failure: W. H. Peckham-Frank Wood's Pace-Strange 1, 1666 nsl 750 ewl of blk 10, A. Rohus sur A-240, abnd 751 ft.

WESTERN CANADA WILDCATS

South Alberta Plains—Tempest Failure: Imperial Oil's Imperial-Tempest 2, lsd 3 24-9-19w4th, abnd 3550 ft.

Princess Gas Discovery: Toronto Syndicate's No. 1, lsd 1 6-22-13w4th, completed 4379 ft; carried into Devonian Dolomite, large gas flows in Bow Island and Basal Colorado sands, td 4379 ft.

South Saskatchewan—Vera-Unity Extension: Bata Petroleums' No. 4, lsd 1 25-39-23w3rd, Viking gas sand 1627-59 ft, flow 1,660,000 gas, td 1659 ft.

WILDCAT STARTS

ARKANSAS

Ouachita County: Sohio Pet. Co.'s S. R. Block 1, c nw ne sw 20-14s-16w, lcn.

CALIFORNIA

Fresno County: Oceanic Oil Co.'s Maxfield 1, 32-20s-15e, lcn.

Kern County: Independent Exploration Co.'s Salt Creek 65-A, 17-29s-21e, lcn.

Los Angeles County: Richfield Oil Corp.'s U. P. Unit 1, 9-2s-12w, lcn.

San Luis Obispo County: Clarence Raley's Kosanke 1, 6-25s-16e, spud.

ILLINOIS

Clinton County: Texas Co.'s List 1, nw ne se 21-1n-3w, dr 344 ft.

Algona Oil Co.'s McHenry 1, ne se nw 21-1n-1w, dr 273 ft.

William Murphy's Noller 1, ne ne ne 28-2n-1w, lcn.

Edwards County: J. E. Housenoa's Luther 1, sw nw nw 18-1n-14w, dr.

Effingham County: Shulman Bros.' Poelker 1, nw nw se 29-6n-7e, dr.

Hamilton County: Carter's Provident Mutual Life Ins. 1, se sw ne 14-4s-7e, lcn.

Jasper County: Texas Co.'s Wyatt 1, sw sw ne 6-7n-10e, lcn.

Jefferson County: W. O. Schock's Huff 1, ne se nw 22-2s-4e, lcn.

Marion County: Standard Drlg. Co.'s Kutnsmon 1, 9-1n-4e, lcn.

Montgomery County: Paul Doran's Helston 1, sw sw ne 15-8n-4w, lcn.

Washington County: Aetna Oil Co.'s Richards 1, ne ne sw 28-1s-1w, lcn.

Wayne County: Bell Bros.' Garrison 1, sw sw ne 5-1s-5e, lcn.

Lucas Dev. Co.'s Lucas 1, nw ne sw 7-1n-6e, lcn.

Robinson & Puckett's Davis 1, nw nw se 21-2n-7e, dr, 117 ft.

INDIANA

Gibson County: J. R. Dee et al's McKendree College 1, ne ne nw 14-1s-12w, lcn.

Posey County: Morton Drlg. Co.'s Ford 1, nw nw ne 15-5s-13w, lcn.

KANSAS

Barber County: Driller's Gas Co.'s Skinner 1, c nw ne 16-31s-14w, lcn.

Barton County: Inland Oil Co.'s Arnold 1, sw sw se 8-19s-15w, dr 970 ft.

W. L. Hartman's Pillar 1, sw sw ne 8-20s-13w, lcn.

Stanolind et al's Cameron 1, se se sw 3-20s-15w, lcn.

Harbar Drlg. Co.'s Unruh 1, ne ne nw 20-20s-15w, lcn.

Butler County: Ward McGinnis' Zebold 1, swc 12-26s-6e, lcn.

Keyes Drlg. Co.'s Ashcraft 1, se se sw 14-26s-5e, lcn.

Decatur County: Continental's Lauda 1, ne nw sw 3-4s-27w, lcn.

Greenwood County: Zappas & McGinnis' Lungwitz 1, se se ne 3-27s-10e, dr 310 ft.

Norton County: Bridgeport's Riemann 1, nec 10-5s-21w, lcn.

Phillips County: Texas Co.'s Mai 1, ne nw ne 26-5s-19w, lcn.

Rooks County: Ed Swearer's Wells 1, se se nw 36-6s-20w, lcn.

Russell County: Mid-States Oil Corp.'s Ross 1, se se sw 25-12s-15w, dr 710 ft.

Sedgwick County: Helmerich & Payne's Rausch 1, se se nw 14-27s-3w, lcn.

KENTUCKY

Harden County: Ill. Mid-Continent's York 1, 11-1-38, dr.

NORTH LOUISIANA

Grant Parish: W. O. Woodward et al's Jack Thompson 1, 6167 alg e/l n 26°, w fr sec 5-5-3w, th 4460 sw at ra in lot of Village plantation, 5-5-3w, lcn.

SOUTH LOUISIANA

Acadia Parish: Vincent & Welch-Nicklos Dr. Co.'s August Leonard 1, 1660 n 1660 e of swc 29-7s-1e, 10,200-ft test.

Calcasieu Parish: W. T. Burton's W. T. Burton Fee 1, 4738.4 s of nl 470 w of el of 15-11s-10w, Choupique area, ru.

MICHIGAN

Gratiot County: Nat. Assoc. Pet. Co.'s Barnhart 1, sw sw nw 5-9n-1w, lcn.

Isabella County: Rowmor and Leonard's Lea 1, se ne se 7-14n-4w, rig.

Kalamazoo County: S. L. Godfrey's Greenhoe 1, se nw se 35-3s-12w, dr.

Mecosta County: Chapman Oil Co.'s Bark 1, e½ sw ne 1-15n-8w, dr.

Midland County: Rex O&G Co.'s Crawford 1, sw sw se 30-15n-2e, rig.

Montcalm County: Gordon Oil Co.'s Christensen 1, nw sw ne 2-11n-6w, lcn.

MISSISSIPPI

Rankin County: Love Pet. Co.'s Denkman

Lbr. Co.-Denkman Distributees 2, c sw nw 22-7n-4e, lcn.

Yazoo County: A. W. Hutchings Dr. Co.'s L. E. Montgomery-Fed. Land Bank 1, c ne se 34-11n-1w, lcn.

NEW MEXICO

Lea County: Mac T. Anderson-C. B. Buck's State 1-A, 360 snl 990 ewl 21-21s-33e, twin to 1430-ft junked test, 3500-ft San Andres test.

Santa Fe County: Richfield Oil Corp.'s Federal-University of N. M. Unit 1, 715 snl 675 ewl 25-14n-11e, 30 mi se Santa Fe, 5000-ft test.

OKLAHOMA

Atoka County: Ed Kubat's Gudgel 1, se ne nw 15-3s-9e, mit.

Comanche County: Texas Co.'s Markle 1, ne ne ne 28-3n-9w, lcn.

Texas Co.'s Stephens 1, sw se ne 3-3n-10w, lcn.

Garvin County: Texas Co.'s Bean 1, nw nw ne 21-5n-1e, lcn.

Kingfisher County: Phillips et al's Hoffman 1, ne nw 12-15n-5w, lcn.

Phillips et al's Jirick 1, sw sw 26-16n-5w, lcn.

Kiowa County: Amerada's Wiede 1-A, nw nw nw 30-7n-16w, rum.

Lincoln County: Dudley Morgan's Wagoner 1, se sw ne 33-17n-6e, rig.

McIntosh County: Swick et al's Well 1, ne se sw 9-9n-14e, rig.

Noble County: Feagin Co.'s Will 1, nw ne ne 15-21n-2e, dr 1250 ft.

Pittsburg County: Public Service Co.'s Martin 1, nw nw 15-8n-14e, mim.

Seminole County: Mid-Continent's Jackson 1, ne ne sw 16-7n-7e, c&p.

WEST TEXAS

Lubbock County: Geo. P. Livermore-Honolulu Oil Corp.'s C. C. DeBusk-Marie Eastman 1, 660 out sec w 100-ac se¼ C&M Ry. 38, blk D-7, ¼-mi w of Idalou, 6500-ft Clear Fork test.

Pecos County: Syndicate Oil Co.'s Hines 1, ne sw sw T.C. Ry. 27, blk 178, 1800-ft cable test.

WEST CENTRAL TEXAS

Comanche County: Central Texas Gas Co.'s W. C. Pettit 1, 3400 wel 3950 nsl of L. Pamplin sur A-758, 3800-ft cable test.

Hamilton County: Homer W. Snowden et al's L. D. Bratton 1, 330 fr sw&nwl of Dennis Gohagan sur, Pat No. 1-1382, dr 1625 ft.

Jones County: Joseph Josephson et al's J. S. Aston 1, ne ne se sect 19, Orphan Asylum Lands, 2500-ft cable test.

SOUTH CENTRAL TEXAS

Atascosa County: Gulf's Hurt & Tartt 1, 3300 fr sl 660 fr wl of Wilkerson sur 1472-ac lse, 10,500-ft test.

Dimmitt County: Calatexia Oil Co.'s S. E. McKnight 1, 467 e 2366.5 s fr nec sect 22 on 153.5-ac lse, sect 35, 3000-ft test.

Williamson County: Fred Hughes' August Debus et al 1, 360 fr sl 755 fr wl Cartwright sur, 750-ac lse, 1500-ft test.

SOUTHWEST TEXAS

Jim Hogg County: Bridwell Oil Co.'s Isabel R. de Gutierrez 1, 330 fr el sur 164 and 317.4-ac lse, 330 fr sl lse, 4000-ft test.

Zapata County: Navillus Oil Well Servicing Co.'s Martiniano Garza Est 1, 330 fr ne&sel blk 76 1227.1-ac lse, Comitas Gr, subdvn blk 76, 2800-ft test.

LOWER TEXAS COAST

Bee County: Dash Prod. Co.'s A. & M. Holzmark 2-C, begin at nwc J. A. York sur th s alg wl 755 th e at ra 2370 to lcn on 339-ac lse, 3600-ft test.

Goliad County: W. C. McBride's August Kenne 1, 1320 fr nwl 467 fr swl 160-ac lse, J. W. Bergen sur, 160-ac lse, 8000-ft test.

Hidalgo County: La Gloria Corp.'s North Weslaco Gas Unit 1, ne nw sect 145 655 e 660 s fr nwc farm tr 98 on 11,140-ac lse, 9000-ft test.

Kleberg County: Humble's King Rch.-Borregas 1, 39,410 fr nl 34,295 fr el Santa Gertrudis Gr, on 40,951-ac lse, 9000-ft test.

Willacy County: Magnolia-J. A. Abercrombie Co.'s Harvey Geis 1, 660 fr e sl 94.85-ac lse, 6304.8 e 660 n of swc of Harding-Lendahl subdvn on 94.85-ac lse, San Juan de Carricitos Gr, 11,000-ft test.

UPPER TEXAS COAST

Brazoria County: Magnolia-Abercrombie's Peter Studer et al 1, 1196.4 n 470 w of sec of 102.9-ac lse and blk 1, S. F. Austin 7-1/3 Lge, 13,000-ft test.

Humble's Leona H. Carter 1, 1320 fr swl 2640 fr sel 1000-ac lse, in nw part of blk 16, T. Gray & J. H. Moore sur, Pledger area, 7000-ft test.

Harris County: Homer W. Snowden's Lebit & Wilson 1, 330 fr nl 800 fr wl 574.12-ac lse and of blk 1 lot 1, Shaw & Luseman subdvn, D. Middleton sur, Addicks area, 8000-ft test.

Liberty County: Sun's Cousins 1, 330 fr nl 330 fr swl 200-ac lse 3050 n of sl of Jas. Knight sur, Moss Hill area, 8500-ft test.

Matagorda County: Humble's J. J. LeTulle 1, 7 sw of nel 112 se of nwl lot 136 blk 109, Bay Stock Farms subdvn, on 410.66-ac tr out of 5366-ac lse, I&GN sur, 7500-ft test.

Montgomery County: K. B. Knox Drlg. Co.'s J. W. Wood 1, 601.3 fr nl 830 fr el 100-ac lse 125 e 601.3 s of swc Wm. Martin sur, in Wm. Weir sur 42, 3800-ft test.

Orange County: Atlantic's Lutcher-Moore Lbr. Co. 1-D, 3600 fr sl 1650 fr el sect 41 on 630.56-ac lse, T&NO sur, Connell area, 10,000-ft test.

EAST TEXAS BORDER COUNTIES

Franklin County: Hunt Oil Co.'s Emma Rambay 1, Abram Stroud sur, 500 s 600 e of nec of 56-ac tr, 9000 ft s&e Mt. Vernon, lcn.

EAST TEXAS

Red River County: Tex Harvey Oil Co. et al's T. H. York 1, 467 wel 1302 snl of 106-ac tr, Christian Groece sur, Lydia area, Smackover lime test.

NORTH TEXAS

Archer County: Grace & Grace's C. E. Carter 1, 150 out sec of e½ sect 37, blk 5, Clark-Plumb sur, 1800-ft rotary test.

Eph Griffin-Staley Oil Co.'s C. H. Spain 1, 1170 snl 150 ewl lot 6, G. P. Meade "55" subdvn, 1400-ft rotary test.

Cooke County: Benson Bros.' H. Fleitman 1, 330 out sec blk 7, Thos. Scott sur A-900, 2500-ft Ellenburger rotary test.

Denton County: Carl Johnston et al's W. H. Newton 1, 900 snl 330 ewl of tr, N. Coker sur A-249, 2500-ft rotary test.

Young County: C. E. Poole & Son's R. C. Howard 1, 541 nsl 225 wel ne¼ TE&L Co. sect 1366 lcn.

J. W. Sparks et al's T. E. Jones 1, 1050 snl 450 ewl TE&L Co. sect 273, 700-ft cable test.

WESTERN CANADA

South Alberta Plains — Princess: Empire-Pacific's No. 1, nw lsd 1 27-19-12w4th, ru.

Conrad: Mid-Continent O&G-East Crest Oil Co.'s No. 6, se lsd 3 8-6-15w4th, ru.

Chin Coulee: Imperial Oil's Imperial-Chin 1, sw lsd 4 8-9-18w4th, ru.

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■ FOR SALE: Medium size gasoline rotary drilling rig, $10,000. Might consider drilling contracts. A. R. Lewis, Corsicana, Texas.

■ FOR SALE: Complete 4000' Oilbath Drilling Rig. Derrick, Oilbath Rotary and Oilbath Drawworks. Gardner-Denver Pump; 2 G.A.K. Waukesha Motors; 6000-lb. water operated B.O.P.; 6000-lb. Gate Valve. Good Tool House, tool boxes and complete set hand tools; Wilson Tongs, etc.; less Drill Pipe. One mile east of Eunice, Louisiana. Price $22,500.00. Harris Drilling Company, Rt. 1, Box 112, Eunice, Louisiana.

2—60,000 barrel riveted steel tanks with new steel tops and structural steel supports, thickness ¾" to 5/16".
1—15,000 barrel welded closed steel tank.
2—10,000 barrell welded closed steel tanks.
1— 7,500 barrel welded closed steel tank.
1— 5,000 barrel riveted closed steel tank.
1—Parkersburg SC 11 pumping unit, stroke 5' to 11' in excellent condition. At a bargain price.

Jos. Greenspon's Son Pipe Corp., National Stock Yards, St. Clair County, Illinois.

LEASES, DRILLING ACREAGE, ETC.

■ Driller, when you want a sizable lease 15/16 free for completed well first year, let us know. John H. Smith, 406 First Natl. Bank Bldg., Longview, Texas.

NOTICES

■ **FUR TRAPPING LANDS WANTED. Reliable Fur Merchant wants to lease, or will operate and supervise for owner muskrat trapping lands, long or short term basis. Write George W. Falgout, 308-310 Gravier Street, New Orleans 12, La.**

■ Submit your drilling deals for our investigation. We are in position to finance a few good ones. Harry Culver, Petroleum Bldg., Oklahoma City, Okla.

■ On June 1 we have a new Sullivan No. 200 Core Drill that will be available for contract. This drill is mounted on a new truck, has new water truck and drill rod truck, new drill rods and experienced crews to run 24 hours per day. C & L Drilling Company, P. O. Box 559, Lubbock, Texas.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 Houston 1, Texas

HELP WANTED

■ WANTED: Driller, experienced on Sullivan hydraulic core drill. Location, Rocky Mountains. Address: Box 35, c/o The Oil Weekly, Houston, Texas.

■ **Wanted by a consulting geophysical organization, Petroleum Engineers with Hayward Mud-logging experience or its equivalent. Immediate openings in Venezuela. Excellent opportunity for advancement to managerial positions throughout the world. Address: Box 36, c/o The Oil Weekly, Houston, Texas.**

■ MAP DRAFTSMAN with some knowledge of oil field operations. Chicago location. State age, experience and salary expected and submit sample of lettering. Address: Box 33, c/o The Oil Weekly, Houston, Texas.

WANTED

Metallurgist

Electrical Instrument Engineer

(preferably with E.E. degree)

Rockbit Designer

by one of largest oil tool manufacturers in Southern California. Specify which position you are applying for. Send complete data about yourself in first letter. Fine openings for right men. Salary open. Address: Box 28, c/o The Oil Weekly, Houston, Texas.

WANTED TO BUY

■ WANTED TO BUY: Approximately fifty barrels Bartlesville production in Eastern Kansas. Address: Box 36, c/o The Oil Weekly, Houston, Texas.

■ WANTED TO BUY: Shot Hole Rig complete —Details first letter. James Feese, Mills, Wyoming.

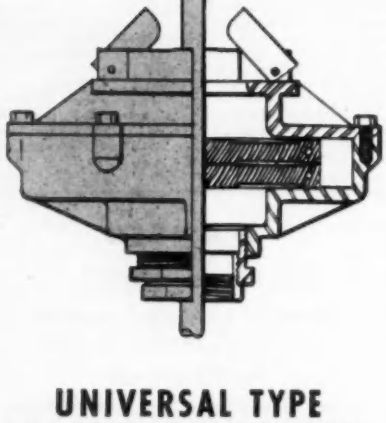
SITUATION WANTED

■ Geophysicist, 10 years with Major Oil Company. B.S. Degree in Electrical Engineering, Electronics. Desires position with aggressive company. Prefer permanent residence. Address: Box 37, c/o The Oil Weekly, Houston, Texas.

■ Petroleum Engineer, 25, single, draft deferred, B.S. 1942 in petroleum engineering desires position in reservoir engineering department of oil company. Address: Box 29, c/o The Oil Weekly, Houston, Texas.

Man with 20 years experience as Drilling and Production Superintendent desires position as Drilling or Production Superintendent or both. Would buy interest in drilling rigs with reputable contractor and look after same. References. H. Y. Tores, 633 N. Jefferson Avenue, El Dorado, Arkansas. Phone 843.

"Best Bet Yet"



UNIVERSAL TYPE SUCKER ROD WIPER

Designed for all sizes of rods. Cast steel body—Plain or safety cover. Adapted to fit pipe from 2" to 3" reinforced.

Replaceable double seal discs, made from oil resistant PBX synthetic rubber, Patterson-Ballagh's new development.

See Composite Catalog

Patterson-Ballagh SUCKER ROD WIPER

Los Angeles 1 Houston 10 New York 6

SQUEAKS from the BULL WHEEL

Poet's Nook

There was an old fellow from Sidney
Who drank till he ruined a kidney.
It shriveled and shrank,
As he sat there and drank,
But he had a good time of it, didney?

Encore

They sat on her porch
At midnight,
But his love was not to her taste.
His reach was 36 inches
And she had a 44 waist.

This Curious World

The honeymoon is over when there are more bills than coos.

A good beginning and a good ending make a good speech if they come close enough together.

Liquor may be slow poison, but who's in a hurry?

Theirs is a real garden romance. He's a dead beat and she's an old tomato.

A sergeant is a man of few words which he keeps repeating.

Courtship is a period during which a girl decides whether she can do better.

Much Better

"Judge, I want to have my name changed."

"What is your name?"

"Joe Stinks."

"Well, I don't blame you for wanting to change it. What do you want to change it to?"

"Charlie Stinks."

Delighted to Know You

"Hello, beautiful."

"I don't know you, sailor."

He put his arms around her and kissed her. "Now, do you remember me?"

"No, but now it doesn't matter."

Lasting Imprint

The roadster skidded around the corner, turned somersault in midair, flattened three pedestrians, uprooted a lamp post, bounced off a tree, collided with three cars, plowed through a stone wall, and came to rest.

A girl scrambled out of the wreckage, straightened her hair, pulled down her girdle, inspected her hose, and exclaimed: "Oh, boy! That's what I call a kiss!"

Still a Few

"I'm going to stay single until I find a girl like Grandpa married."

"You'll be single a long time, then—they don't make them like that any more."

"Oh, I don't know. Grandpa just got married yesterday."

After You, Madam

"What do you mean by swearing before my wife?"

"Sorry. I didn't know she wanted to swear first."

No Angles

A fat lady was vainly trying to get through the door of the bus.

"Try it sideways," suggested the driver.

"I can't," she moaned. "I ain't got no sideways."

Tiny Task

In the small hours of the morning a policeman noticed a befuddled gentleman fumbling for the keyhole of his front door.

"Can I help you find the keyhole, sir?"

"Won't be necessary," said the other cheerfully. "You jus' hold the house still and I can manage."

It's Quieter There

A soldier en route back to camp after his furlough was persuaded by a pretty, tearful blonde to give her his seat on the plane.

He wired his commanding officer: "Gave berth to a girl. Arrive by next plane."

Back came the reply: "Congratulations. Your next confinement will be in the guard house."

William M. Barret, Inc.

Consulting Geophysicists

Specializing in Magnetic Surveys

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique

GIDDENS-LANE BUILDING
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HOUSTON LABORATORIES

Analytical and Consulting Chemist
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Oil Field Brines, Waters and Cores
Complete Evaluation of Crude Oils

Long Distance 267. Box 132. Houston, Tex.

THE FORT WORTH LABORATORIES

Analysis of oil field brines, cores, gas, oil and minerals. Field gas testing. R. H. Fash, Vice President; Long Distance 138 823½ Monroe Street Fort Worth, Texas

BAIRD

SEATS and BALLS

- Available in a grade to meet the individual well pumping problem.
- Furnish longer continuous runs.
- Fewer pulls for replacement.
- Insure more fluid lift economy.

Sold thru Supply Stores

BAIRD MANUFACTURING COMPANY
OIL WELL PRODUCTION EQUIPMENT
TULSA

Personnel Work

The National Foremen's Institute, Deep River, Connecticut, has recently published three books of interest to personnel directors: *How to Handle Labor Grievances*, by John A. Lapp; *Conference Leader Training*, by Maclin & McHenry; and *The Industrial Housekeeping Manual*, by R. F. Vincent.

How to Handle Labor Grievances is the outcome of the experience of the author in handling arbitrations of labor grievances and in formulating and interpreting collective bargaining contracts. This experience has been reinforced by observation of the work of many grievance committees, by consultation with scores of labor and industry leaders, by a study of a large number of collective agreements, and by a review of the printed materials on the history of collective bargaining. The price is $4.

Conference Leader Training presents in concise form the needs for leadership training, and for developing an interest in the underlying principles of conference leading through individual study and by observing an experienced leader at work. The price is $2.50.

The Industrial Housekeeping Manual is a study of the problems of housekeeping and sanitation in the industrial plant. The price is $2.50.

Plastics

Chemical Publishing Company, Inc., 26 Court Street, Brooklyn 2, New York, has published a book on plastics by H. Ronald Fleck, titled *Plastics, Scientific and Technological.*

This is an up-to-date and comprehensive book covering the scientific and technological aspects of the ever-growing plastics industry. It comprises a critical survey of the literature and a correlation of scattered data which will be of value both to chemists of the plastics industry and to the practical men whose work requires the knowledge of the chemistry and technology of plastics. The book is also particularly suited as a text for college courses on plastics. The description of reactions and details of procedure, complete to the last proportion and temperature, will be useful in conducting plastic research, whether this is carried out in a college or an industrial laboratory.

The newest developments in plastic materials both in the United States and in Europe are discussed in great detail. This book is replete with useful tables, diagrams and data which will be of interest primarily to technicians, chemists, professional men and students who are seeking much more than an elementary book on the subject.

Gas Turbine

Although the gas turbine as a prime mover is now in its initial stage of development, it can be stated with assurance that the "impossible" for which engineers and scientists have striven for centuries is at last near realization. The gas turbine is a success.

Such is the conclusion of R. Tom Sawyer, in his new book, *The Modern Gas Turbine.*

The principle of the gas turbine dates as far back as the discovery of fire. The modern device is similar to a windmill, says the author, but the moving air or other gas is controlled and directed in the most efficient manner against the blades of the turbine wheel.

Without the use of highly mathematical calculations, the book is a thoroughly practical discussion of the history and development of the gas turbine. The author's extensive and varied experience in the gas turbine field in the United States, augmented by his first-hand study of the Diesel and the gas turbine as used in Australia and on the European continent, makes him particularly well qualified to present this subject in language that will be understood by students anl laymen who want a clear, practical presentation of the subject. The book is published by Prentice Hall, Inc., 70 Fifth Avenue, New York, and the price is $4.

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AC OR DC CURRENT

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FLUORESCENT
LIGHTING SYSTEM

MORE LIGHT—GREATER SAFETY—LESS EXPENSE—COMPLETELY PORTABLE—CHECK THESE ADVANTAGES OVER ORDINARY LIGHT SYSTEMS.

- More evenly distributed light with less glare—a safety factor of extreme importance.
- Completely portable—modern drilling and production practices demand ease of transportation. The entire system can easily be moved from one rig location to another. It can be installed on any rig in an hour's time by two ordinary roughnecks.
- REALITE Fluorescent Lighting Systems are more economical in first cost, installation and operation than ordinary lighting systems.
- Fixtures are set in all-steel, water-proof boxes. Tube sockets and caps are water and shock-proof. All strings are equipped with safety twist locks.
- For use on both Power and Steam driven rigs. AC Generating Plants range from 2½ to 25 KW. System may be furnished without AC Generating Plant. A system is now available to operate from your present DC power and light string.
- REALITE Fluorescent Lighting Systems have a wide application in the oil industry—drilling and production rig lighting, pipe line construction, etc.—for either AC or DC current. Our service engineers will be glad to help you with any problem.—Write us today.

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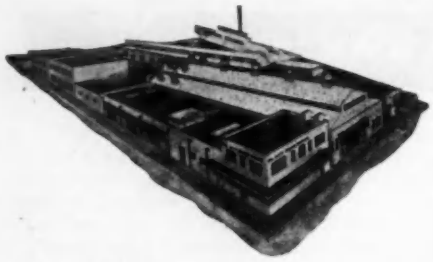

WHEN it comes to WAR MATERIALS, our new plant pictured above is turning out good castings in the battle of production.

OIL CITY BRASS WORKS

Founders • MANUFACTURERS • *Machinists*
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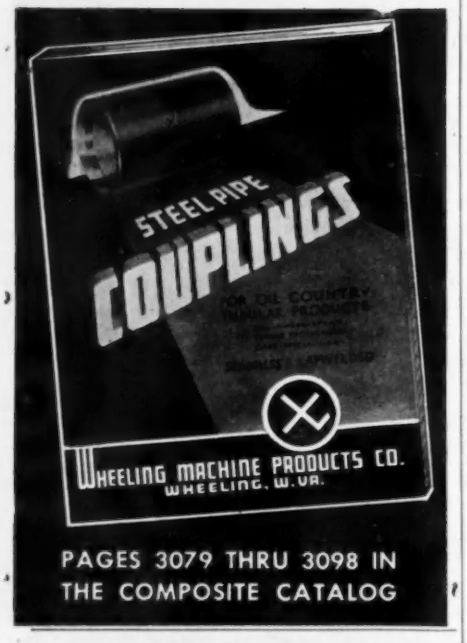

PAGES 3079 THRU 3098 IN THE COMPOSITE CATALOG

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See LAMTEX, Composite Catalog, pages 1570-1571

MEN IN THE INDUSTRY NEWS

George S. Buchanan, formerly president of Yegua Corporation, will be manager of Sohio Petroleum Company's new Gulf Coast Division, which will have headquarters at 2303 Neils Esperson Building, Houston.

George S. Buchanan

Buchanan earned a master's degree in geology at the University of Michigan and spent part of his early career with The Carter Oil Company and Barnsdall Oil Company. From 1934 to 1939 he was vice president of Adams Oil and Gas Company, and in 1939 he became head of Yegua Corporation. The new Yegua president is **George H. Harrington.**

Ralph Filmore, Anderson-Prichard Oil Corporation, was elected president of the Oklahoma City Geological Society, succeeding **E. G. Dahlgren,** Interstate Oil Compact Commission.

Roy McAninch, district geologist for Stanolind Oil & Gas Company, was re-elected vice president, and **Carl Moore,** The Carter Oil Company, was elected secretary-treasurer, succeeding **C. E. Hamilton.**

W. E. Walker, L. E. Lovinggood, and **C. W. Riley,** all of Dallas, have organized the United Petroleum Corporation with paid in capital stock of $10,000 and headquarters at Dallas.

E. L. Davis, director of the Production Division in District 5 (Pacific Coast) of PAW, has resigned to become superintendent of production for Signal Oil & Gas Company, Los Angeles. Davis joined the District 5 office of PAW in December, 1941, and had been director of the Production Division for the last year. For 15 years he was with The Texas Company in California.

Lounsbury S. Fish, organization counsel for Standard Oil Company of California, has been loaned to the War Department for six months in compliance with the request of **Major General Lucius D. Clay,** deputy of the United States Control Council for Germany. Fish will aid development of organizational planning in occupied Germany for the guidance of the Army, both in military government and civil administration.

I. W. McKinney has been appointed factory representative for Homestead Valve Manufacturing Company, with offices at 1711 Second National Bank Building, Houston. He was formerly associated with Humble Oil & Refining Company at the Baytown, Texas, refinery.

J. R. Doles of Springfield, Missouri, has been elected vice president; **O. W. Bailey,** treasurer; and **C. L. Bushnell,** secretary of Ajax Pipe Line Corporation. Doles will continue at the Springfield headquarters where he is general superintendent, while Bailey and Bushnell will remain in Tulsa.

C. L. Bushnell

O. W. Bailey

Doles has been a pipeliner for 36 years and began as a laborer with the Oklahoma Pipe Line Company in December, 1909, in the Muskogee district. He joined Ajax when it was organized in 1930.

Bailey joined Ajax when it was formed and served as chief accountant in the Springfield office before becoming assistant treasurer in 1940.

Bushnell became a pipeliner in 1927 when he joined the Oklahoma Pipe Line Company after 23 years of executive service with railways. He was traveling representative for vice president of the Missouri-Pacific when he accepted his position with OPL.

Shep Miers, in charge of the Tulsa sales office of the Southwest Supply Company, has been placed in charge of the sales force that embraces the Houston, Dallas and Tulsa offices.

W. H. Griffin, chief service engineer, Baker Oil Tools Company, has returned to Houston from a four-month trip to Venezuela.

William Ross has been assigned by Sinclair Prairie Oil Company to scout the Permian Basin area with offices at Midland, Texas.

John G. Staudt, general manager of Dowell Incorporated, has been made a vice president of the company. He holds degrees in chemical engineering from the University of Michigan, and joined the company in 1932 at the time Dowell Incorporated was formed.

He became general manager in 1942 and prior to that time held numerous field positions.

John G. Staudt

John Kennedy Beeson has been elected elected vice president of Pittsburgh Steel Company, with headquarters in Pittsburgh, Pennsylvania. He recently completed his duties with the United States air forces in Europe, holding the rank of lieutenant colonel.

J. K. Beeson

A graduate of Yale University, Beeson was vice president in charge of sales for Pittsburgh Steel when he enlisted in the air corps in May, 1942. Previously, he was assistant general superintendent of the company's plant operations at Monessen and Allenport, Pennsylvania.

George P. Hardison, district geologist for Shell Oil Company, has resigned to become associated with **Henry Schweer,** consulting geologist, with headquarters in Oklahoma City. Hardison was with Shell for 16 years, during which he served in various parts of the Mid-Continent and in several capacities as geologist.

Schweer was recently released from the armed forces after serving overseas with the U. S. Air Corps, 36th Division, and with the RAF.

J. M. Campbell and **V. R. Fields,** both of Houston, and **C. E. Powell, Jr.,** Lumberton, Mississippi, have organized the Exploration Drilling Company with a capital stock of $10,000 and headquarters at Houston.

R. S. Dean, Jr., of McAllen, Texas, and associates have formed the Border Well Service Company with capital stock of $5000. Headquarters are at McAllen.

Barry F. Meglaughlin has been made manager of the Corporate Public Relations Department of Standard Oil Company of New Jersey, a new department which will handle public relations matters for all departments of the company, as well as render advice and assistance to subsidiary and affiliated companies. He has been with the Standard since 1934 and has been editor of Esso Marketer and Esso Dealer since 1936. Since June of last year he has been public relations assistant.

Gilbert M. McCuin, assistant chief of the Property Tax and License Division of the Secretary and Treasurer's office of Standard Oil Company of Louisiana, has been transferred from Baton Rouge to Shreveport, Louisiana, effective June 1. He will take charge of all property tax matters for the southern division of the Interstate Oil Pipe Line Company, recently formed subsidiary of the Standard Oil Company of New Jersey.

G. N. Moore has been transferred to the Tulsa office of Phillips Petroleum Company from Elk City to become assistant to **Glen R. Ames,** division manager. **D. L. Davis** has been appointed division merchandiser and will handle the introduction and distribution of a new line of merchandise for both city and rural distribution through Phillips service stations in the Tulsa division.

Maurice R. Teis, geologist for The Ohio Oil Company, Tulsa, has resigned, effective June 1, to become consulting geologist with offices in Tulsa.

James Welch, formerly of Seminole, Oklahoma, has become assistant manager of the E. V. Boydston Rig Company at Oklahoma City.

First Lieut, Harry M. Smith, former scout for Magnolia Petroleum Company in the Colorado City sector of West Texas, has been rescued from a German prison camp after being shot down over Germany.

Paul W. Bernhard has been appointed advertising manager of Morse Chain Company, of Ithaca, New York. He was formerly with Bell Aircraft and Curtiss-Wright, at Buffalo.

Robert L. Lee of Oakland, California, has accepted the post of field engineer for Schlumberger Well Surveying Corporation, with headquarters at Oklahoma City.

Doris Ballew, former superintendent in the southwest for Phillips Petroleum Company, is organizing his own drilling contracting company.

Deaths

William Irvin Sims, independent oil operator and former attorney, died at Dallas. He was 58.

Earl Wilson, 66, veteran oil man, died in Tulsa May 24 as the result of injuries sustained in a fall. Wilson was once employed in the Moreni oil field in Roumania by Standard Oil Company. Returning to this country he worked mainly in the Burbank and Seminole fields of Oklahoma and in Texas.

John L. Henning, former president and manager of Union Sulphur Company, Sulphur, Louisiana, and an oil operator in the early days at Spindletop, Texas, died May 24 in Sulphur.

Capt. Reese V. Aston of Tulsa, formerly with the Bethlehem Supply Company, was reported killed in action in Italy April 23. He was operations officer for a headquarters company of his infantry battalion, had been overseas since November, 1943, and had been awarded the Bronze Star.

LUFKIN
MICROMETERS

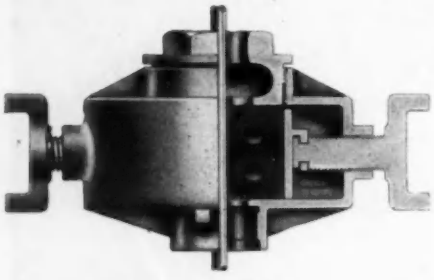
Made in a plant where accuracy and highest quality have been scrupulously maintained for more than a half-century, Lufkin Micrometer Calipers are a product of expert workmanship carefully applied to the finest materials available. Durable, dependable, they are precision-built to assure the mechanic of the best measuring device of its type. Buy Lufkin Micrometers through your supply house. Write for catalog 12.

LUFKIN
SAGINAW, MICHIGAN • New York City
TAPES • RULES • PRECISION TOOLS

1—Sucker Rod Stripper

Equipment Engineers, Inc., Dallas, announces the "Double E" Adjustable Sucker Rod Stripper, and the "Double E" Blowout Preventer.

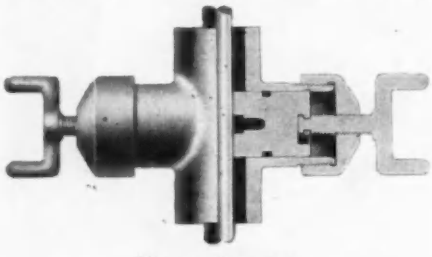
The sucker rod stripper has retract-



Sucker Rod Stripper

able rubber strippers which can be withdrawn into the housing when not needed for stripping oil, paraffin, etc., from sucker rods. This feature permits long life for the rubber strippers and allows adjustment to compensate for normal wear.

The packing elements are of soft rubber in two halves and readily accommodate any size rod or coupling. The housing bottom is threaded with three-inch line female pipe threads. The strip-



Blowout Preventer

per is furnished complete with one adapter to convert from three-inch line pipe to the customer's thread. Dimensions: height, 8½ inches; length, 17¾ inches; breadth, 6¼ inches; weight, 60 pounds.

The blowout preventer for sucker or polished rods works on the same principle as the stripper, but is constructed somewhat differently. Instead of the soft rubber packing, cylindrical steel rams are used, to which has been molded a fabric reinforced sealing element. This oil resistant synthetic rubber element backed by the steel ram prevents leakage against high pressure. Use of the blowout preventer in conjunction with the stripper provides ideal protection, it is claimed, against handling wet rods and pressure surges in heading wells.

When the two devices are used together, the top of the blowout preventer is threaded with three-inch male threads to screw into the bottom of the stripper. Dimensions of the preventer are: height, 8¼ inches; length, 17¾ inches; breadth, 4¼ inches; weight, 35 pounds.

2—Thermo Plastic

Monsanto Chemical Company, St. Louis, announces volume production of Styramic HT, a new thermoplastic which is said to have remarkable electrical insulating properties. The material holds shape and strength at relatively high temperatures yet can be molded quickly and economically. Its most significant characteristic, according to the manufacturer, is the combination of heat resistance with high insulating efficiency in uses such as radar, television and facsimile transmission.

3—Steel Fittings

Ladish Drop Forge Company, Cudahy, Wisconsin, has added a new line of forged steel fittings, available in carbon, alloy and stainless steel and designed for high pressure piping work from 2000 to 6000 pounds.

Available in pipe sizes from ⅛ inch through four inches, the line includes a wide variety of both screwed and socket welding fittings, including 90-degree elbow, tee, 45-degree elbow, cross, street elbow and lateral types. Also offered is a line of steel couplings and reducers, steel bushings and steel half couplings, caps and plugs, with pressure ratings corresponding to the ratings of the fittings up to 6000 pounds. All sizes and types are adaptable to steam, water, oil, oil vapor, gas and air piping.

The screwed fittings have full depth,

accurately cut thread, which allows easy entry of the pipe and results in pressure tight joints. Deep sockets of the socket welding fittings speed up installation by saving time formerly spent in cutting pipe to exact length.

4—Gate Valves

The Ludlow Valve Manufacturing Company, Troy, New York, is offering double disc cast steel gate valves. These valves use the same principle of operation as the heavier Ludlow double disc Gate Valves. Sizes range from 4 to 12 inches, inclusive, 150 pounds per square inch working pressure at 500° F.

The valves comply and generally exceed API specifications and also include a number of refinements such as precision machining of wedges and wedge surfaces and other features.

5—Paint

Guaranteed Products, Los Angeles, has developed a non-saponifying paint for concrete floors, called Rubbermastic. According to the manufacturers this paint can be applied to any surface, wet, damp, or dry, painted or unpainted, and no etching or preparation is necessary. The paint can be applied to walls, roofs, floors of concrete or brick, stucco, paper, wood or metal.

Use This Convenient Coupon for Additional Information

Check below the numbers identifying items on which you want additional information. Mail coupon to The Oil Weekly and your request will be forwarded to the manufacturer.

THE OIL WEEKLY
P. O. Box 2608, Houston 1, Texas, U.S.A.

Please have manufacturers send me, without obligation, more information on items shown in June 4 issue of The Oil Weekly as checked below:

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Also, I would like more data on products or services advertised by _____

_____ Company on page _____ of this issue.

Name _____ Title _____

Company _____

Address or P. O. Box _____

City _____ State _____

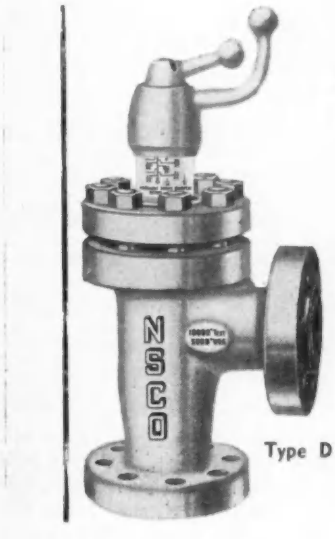
(To avoid delay print or type clearly name, company and mailing address)

6—Adjustable Micro-Choke

National Supply Company of Toledo, Ohio, has developed a new Micro-Choke which has its principal field of application on high pressure wells. Very fine, accurately readable adjustments are possible throughout the full orifice opening range of the choke. Rotation of the thimble arm positions the choke tip while equivalent orifice diameter reading is made from the indicator barrel which has black graduations on a yellow background.

Type E

The National Type D Micro-Choke is constructed to permit conversion from an adjustable choke to a replaceable flow bean type. The bonnet, adjusting and indicating mechanism can be removed as a unit and replaced with a blind flange. The choke seat can be replaced with a solid flow bean. Bodies are supplied with API line pipe threads or flanged outlets in a range of sizes and test pressures to meet requirements of operation conditions.

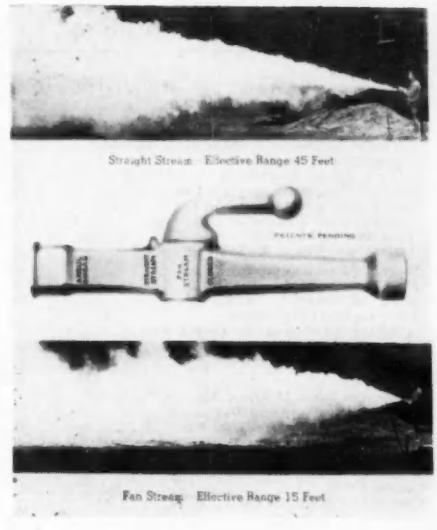


Type D

The Micro-Choke is supplied where an adjustable choke will be used throughout the life of the well and does not provide for replacement of the choke seat with a solid flow bean. Chokes are supplied with either a standard or full opening bore seat and tip for each outlet specification. Indicators are graduated for each respective bore specification and are easily changed to correspond to the choking parts in use. It is supplied in different test pressure and outlet specifications to suit various field requirements.

7—Dual-Stream Nozzle

Dugas Division of Ansul Chemical Company, Marinette, Wisconsin, announces a new dual-stream nozzle which greatly increases the fire fighting effectiveness of its wheeled models. The



new nozzle permits the operator to apply the dry chemical on a fire either as a long range straight stream or as a shorter range fan stream.

After observing extensive large scale fire tests on the company's test grounds, Factory Mutual Laboratories have given the Dugas wheeled extinguishers greatly improved ratings.

With this new dual-stream nozzle, overhead fires, heretofore considered exceedingly difficult to fight, can be extinguished successfully.

Literature

8—Valves

Merco Nordstrom Valve Company & Pittsburgh Equitable Meter Company, Pittsburgh, has published a new catalog, No. 9, which makes obsolete all previous editions of Nordstrom Valve catalogs and bulletins.

The catalog comprises 134 pages of valve listings and specifications, engineering tables, lubricant data, etc. Parts for the various types of valves are illustrated, with detailed drawings showing special features.

9—Packing

Darling Valve & Mfg. Co., Williamsport, Pennsylvania, has published Booklet 4502 on new and improved packing for air and hydraulic cylinders. It lists types of hydraulic machines in which this type of packing may be used, and describes how Pumcups lengthen service periods, increase packing life and reduce cylinder wear in hydraulic mechanisms and controls which involve linear, reciprocating and straight-line motion. The booklet also contains new engineering data on chemical and physical properties, textures, sizes, temperatures and pressures of this newly improved packing.

10—Magnets

General Electric Company, Schenectady, New York, has published bulletin GEA-3682-B describing Sintered-Alnico magnets. The introduction of alnico, a product derived from aluminum, nickel and cobalt, according to the company, has brought a new concept of magnet theory to the engineer. New designs of precision equipment are made possible by use of this material. The bulletin discusses the product and its applications.

11—Pumps

Fairbanks, Morse & Company, Chicago, has issued two new bulletins on pumping problems. Publication AQB400, deals with the Fairbanks-Morse Figure 6920 oil lubricated turbine pump. Bulletin AQB500 is devoted to the low-lift, large capacity line of pumps known as Fairbanks-Morse Niagara Propeller pumps.

Kerotest Wins Fifth Star For Maritime Pennant

Kerotest Manufacturing Company, Pittsburgh, has been awarded the fifth and final gold star for its Maritime "M" pennant in recognition of continuous outstanding production of essential war materials. The pennant with a single gold star was awarded in August, 1942. Five additional stars were awarded during 1943 and 1944 and the pennant will now carry six stars.

Clark Awarded Star

Clark Brothers, Olean, New York, has been awarded the third star for its Army-Navy E Flag for continuation of excellence in production of war equipment.

New Office Opened

The James Lithgow Company has recently moved from 6355 Compton Avenue, to 4657 Sheila Street, Los Angeles 22. This company offers corrosion prevention service in its new location.

Wilson Warehouse Moved

Wilson Supply Company, Houston, has moved its East Texas warehouse from Gladewater to Kilgore. J. F. Tucker is in charge of the warehouse and supervises the company's activites in the Kilgore district.

Eastman Opens Office

The Eastman Oil Well Survey Company announces the opening of an office in Victoria, Texas. In charge will be field service representative, B. Frank Johnson.

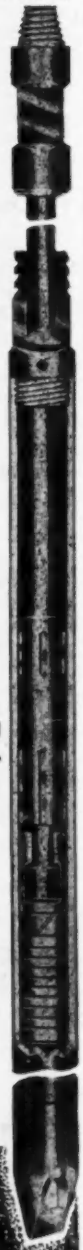
INCREASE PRODUCTION

MIDCO BAILER

CUT CLEAN OUT TIME IN HALF...

TYPE F-5

TYPE G



- Every individual feature of the MIDCO contributes in some degree to the almost unbelievable results obtained.
- Large volume of sales in both Domestic and Foreign fields permits maintenance of price competitive with any clean-out tool.
- Distributors located in practically all fields make replacement parts readily available.

●

G-TYPE has solid steel plunger rod—exceptionally sturdy construction throughout.

Standard cable tool pin permits Jars and Sinker to be run above pump, eliminating fishing jobs.

●

F-5 TYPE has patented plunger construction to assure highest possible efficiency in this type of pump.

PATENT No. 2061486
2090055—2090209—2176231
2187042. Other Patents Pending

For additional information see COMPOSITE CATALOG, Page 1903
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TELEPHONE 7-8586 BOX 1542
OKLAHOMA CITY · OKLAHOMA

Continental D B Store Is Opened in West Texas

D B Division of Emsco Derrick & Equipment Company, Los Angeles, has opened a new Continental D B store in Odessa, Texas. This store will provide service for deep well pumps and other oil field equipment, in the various fields in Ector County, as well as extend the service into the surrounding counties of Crane, Ward, Winkler and Andrews.

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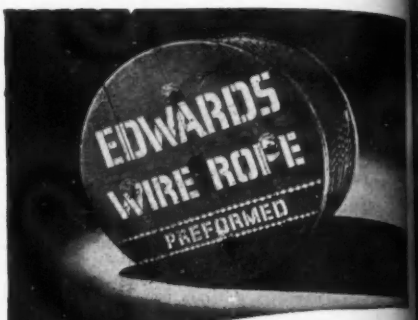

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